SIMULATION OF *IN-VIVO* MONITORS AND VOXEL PHANTOMS FOR ESTABLISHING CALIBRATION FACTORS

By

M.MANOHARI
(Enrollment No: PHYS02200904004)

Indira Gandhi Centre for Atomic Research
Kalpakkam – 603102
Tamil Nadu, India

A thesis submitted to the Board of Studies in Physical Sciences
In partial fulfillment of requirements
For the degree of

DOCTOR OF PHILOSOPHY

Of

HOMI BHABHA NATIONAL INSTITUTE
Mumbai

August, 2014

HOMI BHABHA NATIONAL INSTITUTE

Recommendations of the Viva Voce Board

As members of Viva Voce Board, we certify that we have read the dissertation prepared by **Ms. M. Manohari** titled "**Simulation of *in vivo* monitors and voxel phantoms for establishing calibration factors"** and recommend that it may be accepted as fulfilling the dissertation requirement for the Degree of Doctor of Philosophy.

_____

Chairman – Dr. R. S. Keshavamurthy Date:

_____

Convenor/Guide – Dr. B. Venkatraman Date:

_____

External Examiner Date:

_____

Member – Dr. K. Devan Date:

_____

Member – Dr. D.Ponraju Date:

Final approval and acceptance of this dissertation is contingent upon the candidate's submission of the final copies of the dissertation to HBNI.

Date:

Place:

CERTIFICATE

I, hereby certify that I have read this dissertation prepared under my direction and recommend that it may be accepted as fulfilling the dissertation requirement.

Date: (Dr. B. Venkatraman)

Place: Thesis supervisor

Statement by Author

This dissertation has been submitted in partial fulfillment of requirements for an advanced degree at Homi Bhabha National Institute (HBNI) and is deposited in the Library to be made available to borrowers under rules of the HBNI.

Brief quotations from this dissertation are allowable without special permission, provided that accurate acknowledgement of source is made. Requests for permission for extended quotation from or reproduction of this manuscript in whole or in part may be granted by the competent authority of HBNI when in his or her judgment the proposed use of the material is in the interests of scholarship. In all other instances, however, permission must be obtained from the author.

(M.Manohari)

DECLARATION

I, hereby declare that the investigation presented in this thesis has been carried out by me. The work is original and has not been submitted earlier as a whole or in part for a degree/diploma at this or any other institution/University.

(M.Manohari)

List of publications arising from the thesis

Journal

1. Tomas Vrba, Pedro Nogueira, David Broggio, Margarida Calderia, Kevin Capello, Karin Fantinova, Catarina Figueira, John Hunt, Debora Leone, **Manohari Murugan,** Olaf Marzocchi, Montse Moraleda, Arron Shutt, Soheigh Suh, Masa Takahashi, Katarzyna Tyminska, Maria Antonia Lopez, Rick Tanner. EURADOS intercomparison on MC modeling for the *in vivo* monitoring of Am-241 in skull phantoms (part I). Radiation Physics and Chemistry 104, **(2014)**, 332-338.
2. **Manohari M.**, Mathiyarasu R., Rajagopal V. and Venkatraman B. Comparison of two anthropomorphic phantoms as a calibration tool for wholebody counter using Monte Carlo simulations. Radiation Protection Dosimetry. doi 10.1093/rpd/ncu287(2014)
3. **Manohari M.**, Mathiyarasu R., Rajagopal V.and Venkatraman B. Simultaneous recording of high energy photon spectrum using Phoswich detector. Journal of Radiation Protection and Environment, 35(2), **(2012)**, 96-99.
4. **Manohari M.**, Mathiyarasu R., Rajagopal V., Meenakshisundaram V. and Indira R. Calibration of Phoswichbased lung counting system using realistic chest phantom. Radiation Protection Dosimetry 144(1-4), **(2011)**, 427-432.
5. **Manohari M.,** Mathiyarasu R., Rajagopal V. and Venkatraman B. Monte Carlo simulation of shielded chair wholebody counting system with Masonite cut-sheet phantom. Accepted in Journal of Radiation Physics and Chemistry. Manuscript Number RPC6684

Publication not related to this thesis work

1. Arun B., **Manohari M.**, Mathiyarasu R., Rajagopal V., Jose M T. Prediction of background in low energy spectra of Phoswich detector. Radiation Protection Dosimetry 162(3), **(2014)**, 260-267.

Conferences

1. **Manohari M.**, Mathiyarasu R., Rajagopal V. and Venkatraman B. Use of Phoswich Detector for Simultaneous Monitoring of High Energy Photon and its Applications in *in vivo* Lung Counting. Proceeding of 13th international congress of International Radiation Protection Association. 13-18th May, **2012** IRPA-13. www.irpa13glasgow.com/information/downloads-fullpapers/TS2d
2. **Manohari M.**, Mathiyarasu R., Rajagopal V. and Meenakshisundaram V. Testing of in situ emergency monitoring field instruments with a subject undergone medical diagnostic testing. Proceedings of International Symposium on Accelerator and Radiation Physics (ISARP-2011), February 16-18, **2011**, Saha Institute of Nuclear Physics, pp.268-271.
3. **Manohari M.**, Mathiyarasu R., Rajagopal V. IAEA intercomparison exercise on Direct Measurement of Radionuclide in Simulated Organs. Proceedings of 31st National Conference on “Advances in Radiation Measurement Systems and Techniques. IARPNC- 2014, March 19 -21, **2014**, Mumbai, pp-117.
4. **Manohari M.,** Mathiyarasu R., Rajagopal V. and Venkatraman B**.** IGCAR-Wholebody counting facility participation in the EURADOS intercomparison exercise. ibid. pp-232.

ACKNOWLEDGEMENTS

First, I would like to express my immense gratitude to my guide Dr. B. Venkatraman, Associate Director, Radiological Safety and Environmental group for his constant encouragement, motivation and guidance throughout this work.

I sincerely thank my doctoral committee members Dr. R. S. Keshavamurthy, Dr. K. Devan and Dr. D. Ponraju for reviewing my research and for providing me with helpful insights and recommendations. It is my pleasure to thank Dr. M.T. Jose, Head, Radiation Safety Section for his keen interest in the completion of this thesis work.

My heartfelt thanks to Shri. R. Mathiyarasu, Shri. V. Rajagopal, Dr.. O. Annalakshmi,

Smt. I. Vijayalakshmi, Shri. B. Arun, and Shri, S. M. S. Murthy for their whole hearted support at all times for the successful completion of the thesis.

I am extremely thankful to my former guide, Dr. R. Indira and former section Head, Dr. V. Meenakshisundaram, for granting me permission to pursue my research.

I express my gratitude to Dr. S. A. V. Satya Murthy, Group Director, Electronics, Instrumentation and Radiological Safety Group and Dr. P. Vasudeva Rao, Director IGCAR for their support. I would also like to thank Shri. S. C. Chetal, the former director of IGCAR.

It's a great pleasure to thank all friends at RSD, SED and RpG of IGCAR, Kalpakkam for their whole hearted support at all times for the successful completion of the thesis. I sincerely thank Dr. L. Thilagam, SRI-AERB, Kalpakkam for her help in the computation field. My special thanks to Dr. Gary. H. Kramer and Shri. Kevin Capello, HML, Canada, Shri. Hemant Patni and Smt. Y. Minal Nadar of BARC for their technical support. I would also like to thank ICRP for making the ICRP voxel phantoms available as an open source in the web and express my gratitude to the organizing committee of EURADOS

intercomparison exercise for allowing me to participate in the exercise and especially to Dr. Tomas Vrba for excellent coordination in this exercise.

Finally, I would like to thank all my family members for their support.

(M.Manohari**)**

List of Abbreviations

BOMAB	Bottle Manikin Absorber
CWT	Chest Wall Thickness
CSG	Constructive Solid Geometry
CSF	Compton Scattering Factor
CsI(Tl)	Thallium doped Cesium Iodide detector
EURADOS	European Radiation Dosimetry group
FWHM	Full Width at Half Maximum
GEB	Gaussian Energy Broadening
HEP	High Energy gamma Photons
HPGe	High Purity Germanium
HVT	Half Value Thickness
IAEA	International Atomic Energy Agency
ICRP	International Commission on Radiological Protection
ICRP-AF	International Commission on Radiological Protection - Adult Female voxel phantom
ICRP-AM	International Commission on Radiological Protection - Adult Male voxel phantom
ICRU	International Commission on Radiation Units
JAERI	Japan Atomic Energy Research Institute
keV	Kilo electron Volt
LEP	Low Energy gamma Photons
LLD	Lower Level Discriminator
LLNL	Lawrence Livermore National Laboratory
MC	Monte Carlo
MCNP	Monte Carlo N-Particle
MDA	Minimum Detectable Activity
MEQ-CWT	Muscle equivalent chest wall thickness
MIRD	Medical Internal Radiation Dose
NaI(Tl)	Thallium doped Sodium Iodide
PSD	Pulse Shape Discrimination
SC	Shielded Chair counting system
SSC	Shadow Shield Counter
TP	Torso Plate
ULD	Upper level discriminator
Voxel	VOlume X ELement (the three dimensional equivalent of pixel)

CONTENTS

SYNOPSIS

Exposure to ionising radiation is an occupational hazard in activities that involve handling of radioactive substances, be it in nuclear industry, medical or research institutions. Protection of occupational workers and the members of the public are essential for the safe and acceptable use of radiation and radioactive materials. According to the system of dose limitation adopted by the international and national regulatory practices, all exposures resulting from a practice shall be justified, optimised and kept well within the dose limits prescribed [1,2]. In order to comply with the requirement of dose limits, the potential for exposures to the workers must be identified and a comprehensive, state-of-art personal exposure monitoring system shall be in place. Radiation exposure to the occupational workers occurs in two ways; through external radiation sources and from sources that become internal during the course of work. Hence, each radiation facility shall have a program to monitor internal and external radiation exposures so that the sum of the exposures is kept within the annual radiation dose limit prescribed.

External dosimetry is accomplished by using a suitable personal dosimeter (such as film badges, Thermo Luminescent Dosimeters -TLD). Monitoring of internal radioactive contamination is done by adopting either of the two methods viz., detecting them in-vivo or in-vitro. In the case of in-vivo monitoring very sensitive large volume detectors are kept near the subject and the assessment is done using gamma spectrometry. In-vitro monitoring requires collection and analysis of biological samples from the individuals for assessment of radioactivity. While both the systems have advantages and limitations, the systems are sufficient enough to detect radioactivity levels to meet the regulatory requirement.

Indira Gandhi Centre for Atomic Research (IGCAR), Kalpakkam the second largest R&D unit of the Department of Atomic Energy (DAE) in India, has the objective of conducting broad based multidisciplinary programme of scientific research and advanced Engineering, directed towards the development of sodium cooled Fast Breeder Reactor [FBR] technology, in India. Centered around this reactor a number of radiation facilities such as Radio Metallurgy Laboratory, Radio Chemical Laboratory and the used nuclear fuel Reprocessing Group have been established for post irradiation examination and reprocessing of the irradiated fuels. The Centre has about 1000 occupational radiation workers. To cater to the radiological safety requirements, a laboratory for ensuring the radiation protection of the workers was set up including among other things, personnel monitoring facility for external exposure, whole body counting (in-vivo) and bioassay (in-vitro) facilities for monitoring internal exposure. The dissertation is restricted to studies related to in-vivo monitoring.

In case of occupational workers the main route of intake is by inhalation [3]. Depending on the physio-chemical property of the radioactive material, they get deposited in various parts of the body [4]. Hence it is important to monitor not only the initial site of interest but other organs or the entire body because of the possibility of transfer of the contamination to other sites internally. For this purpose, whole body counting facility at IGCAR houses whole body monitors such as shielded chair counting system, shadow shield counter and partial body monitors such as Phoswich based lung monitor and thyroid monitor. Four major steps that are involved in the estimation of internal exposure are (i) identification of radionuclides (ii) quantification of concentration of the radionuclides(iii) estimation of intake through biokinetic models and (iv) dose estimation using dosimetric models.

The quantification is done using calibration factors which are generated using man equivalent structures (phantoms) loaded with known quantities of radioactive materials [5]. Precise calibration of the system is essential for accurate estimation of activity in the

individual organs / whole body. Efficiency calibration is difficult and complex compared to conventional gamma spectrometry measurements in view of the sample being large (human subjects) and the variation in distribution of radioactivity. The complexity increases further due to a number of other parameters such as geometry, variation in size and shape of the subjects, the energy of the gamma rays emitted, differential attenuation in various components in the body etc., which may result in large error in the calibration factors unless the phantoms and sources used are properly chosen[6]. The effect of these parameters are less in high energy gamma measurements like fission and activation products and more pronounced in the case of measurement of actinides (^{239}Pu, ^{241}Am) which are low energy gamma or X-ray emitters.

Phantoms used worldwide [5] for of high energy photon emitters are anthropometric like BOMAB and for the calibration of low energy photon emitters, anthropomorphic and anthropometric phantoms such as LLNL phantom are used. At IGCAR, Masonite cut sheet, Indian adult BOMAB, LLNL and thyroid phantoms are being used for calibration.

Significant differences exist in the anatomical and physiological characteristics of human populations of different ethnic groups. The phantoms available for low energy measurements typically represent only Western or other Asian population and are less representative of Indian standard man. So there is a need for developing a realistic phantom representing an Indian reference man. The work for the formulation of an Indian reference man was pioneered by Venkataraman [7] in the early sixties and was later continued in nineties by Dang et al [8]. The studies revealed that even among Indians a large variation in the body parameters exist indicating a need for a group of phantoms representing different races, age groups, sex, which may not be possible. To circumvent this problem an alternate is required.

Physical phantoms have their own limitations: (i) they represent the standard man and not the individuals being monitored, (ii) represent only standard homogenous distribution of radioactivity in the organs, (iii) they require multiple organ sets for various radionuclides. Fabrication requires not only handling of radioactive substances but also a special technique so that their use does not result in the contamination of the subject /phantom. They also suffer from limited shelf life due to choice of material and decay of radionuclides. Moreover, no realistic physical female phantom has been developed for the calibration of in-vivo counting systems. So, an alternate for physical phantom needs to be explored.

During a rare event of nuclear / radiological emergency situations, monitoring of highly contaminated subjects may be required wherein; the counting geometry may differ from that of routine counting geometry. Such monitoring using non-conventional geometries like monitoring from a distance also require calibration factors which may not be experimentally possible to determine [9]. For these, one needs an alternative calibration procedure.

Use of virtual phantoms coupled with Monte Carlo simulations to generate calibration factors has been a viable alternative to the use of physical phantoms. The emergence of Monte Carlo codes such as MCNP [9], VMC [10], EGS4 [11], GEANT [12], MORSE [13], PHENELOPE [14], TRIPOLI[15], etc. allows a priori and a posteriori analyses for dissimilar calibration and measurement conditions. Large or small morphologies [16], heterogeneous distribution of radioactivity [17], effect of the detector position during the measurement, anisotropy of detectors and effect of shielding need to be taken into account while performing numerical calibration.

Initially MIRD (Medical Internal Radiation dose) numerical phantoms, representing international standard man, were developed for dosimetric purposes and they were also used

for the calibration of in-vivo monitors [18]. MIRD phantoms are computational phantoms where the body organs are represented by simple standard geometrical shapes like elliptical cylinders, spheres, ellipsoids, spheroids, right circular cylinders of masses described in terms of general quadratic surface equations [19]. The MIRD computational phantoms, although provide near exact geometries of human subjects for use with MC radiation transport calculations, are only approximations to real human anatomy. The representation of the internal organs is crude and the models represent only most general geometry of each organ. Alternate computational phantoms called voxel phantoms have been developed in the recent years for dosimetric purposes based upon 3-D imaging techniques like computed tomography (CT) and magnetic resonance imaging (MRI). They are more realistic replication of human anatomy, consisting of large volume elements (voxel) [20]. With the advent of high speed computers and imaging techniques, voxel phantoms are gaining importance in the field of calibration of in-vivo monitors [21, 22]. ICRP has recently approved [23], adult computational voxel phantoms for use in radiation dosimetry

Extensive literature survey has been carried out covering nearly150 references related to numerical calibration of in-vivo monitors using different phantoms including voxel phantoms. Frontier institutions have numerically simulated the calibration factors for their various in-vivo monitors and compared with the experimental ones. In the years to come, the numerical calibration will replace the calibration using physical phantom. This survey helped in identifying the challenging areas of research and motivated the author for undertaking the work in this thesis.

Though extensive work has been carried out internationally in the field of numerical calibration of in-vivo monitoring systems, indigenous development of these procedures at IGCAR had to be undertaken because of differences in the counting geometry of the in-vivo monitors, the phantoms used for calibration (in house built phantoms like Masonite cut sheet

phantom,Indian adult BOMAB phantoms) and choice of detectors. Most of the simulation studies related to low energy photon measurement are done for HPGe detector based systems. Theoretical simulation studies with Phoswich detector for low energy measurements were done only in limited laboratories and the data available are scanty. This has been a main reason for undertaking the simulation study at IGCAR.

In this dissertation, all the in-vivo monitors at IGCAR have been theoretically calibrated by modeling various phantoms. Monte Carlo MCNP4b code was used for the theoretical calibration [24]. To begin with the whole body monitors were modeled with different whole body phantoms. Numerical calibration of shielded chair counting system with indigenous Masonite cut sheet phantom and Indian BOMAB phantom was carried out for the first time. The study revealed that the Masonite cut sheet phantom is equivalent to Indian adult BOMAB phantom for calibration of high energy gamma photons. Then various partial body counters were modeled. ICRP voxel phantom has been applied as a calibration tool for the measurement of actinides in lungs, liver and bone. The simulated results were compared with experimental results obtained using physical phantoms like LLNL and JAERI. As a first step in the development of an Indian voxel phantom, an Indian thorax voxel phantom was developed by scaling the ICRP male voxel phantom according to the dimension of the trunk of the Indian adult reference man. Then the calibration factors of ^{239}Pu and ^{241}Am for Phoswich detector was estimated using this phantom.

This thesis also presents the application of the numerical simulation to estimate the activities in the physical phantom received as a part of the international intercomparison exercises for measurement of activities in simulated organs organized by IAEA, for the Monte Carlo simulation of ^{241}Am in the skull organized by EURADOS. As part of IAEA intercomparison exercise, wherever the experimental efficiencies were not available, Monte Carlo simulations were carried out to estimate the calibration factorand the same is used for

activity estimation. Similar simulations were carried out for phantoms having significant size difference compared to the phantoms used for experimental calibration. As part of EURADOS exercise, different skull phantoms in the form of CT images were received. Information on materials, densities and compositions were extracted from CT images and converted to voxel phantom using in house built FORTRAN program. Monte Carlo simulations were carried out for the provided various HPGe detector configurations, geometries and phantoms. Simulation results agreed within ±15%with the measured values in all these exercises.

This numerical calibration can now be applied to obtain calibration factors for any type of detector, counting geometry, photon energy and physique of the subject. This thesis work can also be extended to design the counting geometry of any upcoming in-vivo monitoring facilities. This technique can also be used for activity mapping when more than one organ is contaminated. Theoretical simulations coupled with biokinetic models can help in estimating time dependent activity in various organs.

Chapter 1: Introduction

An overview of the radiation exposure in nuclear industry especially internal exposure is presented in this chapter. Subsequently a brief description of various modes of intake, measurement techniques, choice of instruments and their calibration, use of phantoms and their applicability, and uncertainties associated with the estimation of activity is provided. The need and basis for numerical calibration and the characteristics of the MCNP code are described. A detailed literature review of the numerical calibration of in-vivo monitors especially using voxel phantoms is also presented. Based on the aforementioned review the motivation of the present work is presented.

Chapter 2: In-vivo monitoring systems Basics and experimental methods of calibration

In this chapter, after a brief introduction to gamma ray spectrometry, all the in-vivo monitoring systems and the phantoms used in this work, along with the experimental calibration procedures are presented. This chapter also presents the calibration factors and the CSFs obtained through experiments.

Chapter 3: Theoretical simulation of in-vivo monitors

One of the significant works accomplished in the course of the study is the simulation of in-vivo monitors at IGCAR with in-house developed phantoms which are not available in literature. This is highlighted in this chapter. Apart from this, a comparison of Masonite cut sheet phantom (indigenous) and Indian BOMAB phantom as calibration tool for high energy photon measurement is carried out.

The simulation of the scanning geometry of shadow shield counter using static geometry with detectors at multiple locations is also discussed in this chapter. Validation of the detector and voxel phantom modeling for low energy gamma photons is done by comparing the numerical and measured calibration factors using LLNL phantom, the results of which are also highlighted in this chapter. Theoretical estimation of calibration factors of actinides for Phoswich detector using ICRP male and female voxel phantoms were done and a comparison with physical LLNL and JAERI phantoms showed that the ICRP male voxel phantom was closely representing the LLNL phantom but compared to JAERI phantom there was a 26% deviation in the calibration factor of ^{239}Pu in the lungs. The uncertainty in calibration factor due to the positioning of detector was found to be 8% per cm along the height of the subject and is <2% per cm across the torso. This chapter also describes the development of Indian adult thorax voxel phantom and its use for the calibration of lung monitor.

Chapter 4: Comparison of simulated results with measurements

This chapter deals with the results and analysis of the simulation of various in-vivo monitors described in chapter 3. The study showed that the Masonite cut sheet phantom was equivalent to Indian adult BOMAB phantom as a calibration tool for gamma energies above 250 keV for Shielded chair. In the case of shadow shield counter a deviation of 10% between the simulated and the measured calibration factor validated that the scanning mode can be simulated by averaging the results of the static geometry detector at 16 different locations. Calibration factor for ^{239}Pu in the lungs of LLNL phantom was obtained theoretically. The distribution of 6 plugs at the centre of each lung set gives calibration factor equal to uniform distribution for single Phoswich counting geometry. The calibration factors of ^{241}Am in lungs and liver were estimated using ICRP male voxel phantom. The contribution factor for 17 keV due to 60 keV was estimated which is very difficult to establish experimentally due to the non-availability of source having 60 keV gamma photonsalone. Efficiency curve was theoretically generated for the energy range from 17 to 100 keV using ICRP male voxel phantom. This chapter also discusses the estimation of the cross talk in the lung measurement due to the activity in the liver and vice versa. A comparative study of the theoretical calibration factors for ^{241}Am in the lungs of male and female phantoms was also carried out and the results are also discussed. A comparison is also made between the theoretical calibration factors for Indian voxel phantom and LLNL phantom. The calibration factor of ^{241}Am for Phoswich detector for Indian voxel phantom was 2 times higher than that of ICRP-AM.

Chapter 5: Application of numerical calibration to intercomparison exercise

This chapter discusses the estimation of shielded chair counting system calibration factor for IAEA 95 percentile BOMAB phantom received as a part of intercomparison exercise. With the theoretically simulated calibration and Compton scattering factors, the

activities were estimated and they matched within ±10% of the true value. This study revealed that subject size affects the detector calibration factor even at higher energies and a need exists for correction to have accurate internal dose estimation. This chapter also presents the modeling of HPGe detectors of various configurations in different counting geometries for the estimation of calibration factors for ^{241}Am in skull using various virtual skull phantoms which have volume and surface distribution of ^{241}Am as a part of intercomparison exercise. A comparison of the IGCAR simulated calibration factor with that of other participants and with the measured values is also done. It also discusses the estimation of calibration factors for ^{241}Am present in the skull using Phoswich detector available at IGCAR.

Chapter 6: Conclusion and future directions

In this chapter the salient features of the results obtained for the various in-vivo monitors and phantoms modeled during this thesis work are summarized. It also highlights the outcome of this thesis. Comparison with the theoretically simulated calibration and contribution factors of shielded chair counting system using Indian adult BOMAB phantom and using Masonite cut sheet phantom shows that both the phantoms are equivalent for energies above 250keV. As a preliminary step towards the construction of Indian voxel phantom, Indian Thorax voxel phantom has been developed by scaling the ICRP male voxel phantom and the corresponding calibration factors of Phoswich detector was established. The Phoswich detector has been modeled for the first time along with the voxel skull phantoms for the estimation of ^{241}Am in skull. This work has been extended and the process of fabrication of physical Indian reference phantom has already been initiated. Further the scope for the future work is also discussed. Some of the potential areas include incorporation of PSD electronics in Phoswich detector simulation, development of whole body Indian voxel phantom based on MRI images incorporating the variation in the size of the individual organs.

References

[1] International Commission on Radiological Protection Publication 103. The 2007 Recommendations of the International Commission on Radiological Protection. Ann. ICRP 37(2-4) oxford Elsevier (2007).

[2] Atomic Energy Regulatory Board. Radiation protection for nuclear facilities. AERB Safety Manual No. AERB/NF/SM/0-2 -Rev. 4 (2005).

[3] International Atomic Energy Agency Methods for Assessing Occupational Radiation Doses due to Intakes of Radionuclides. Safety Report series No. 37 (2004).

[4] International Commission on Radiological Protection. Human Respiratory tract model for radiological protection. ICRP publication 66. Ann. ICRP 24(1-3) Pergamon press (1994).

[5] International Atomic Energy Agency. Direct methods for measuring radionuclides in the human body IAEA Safety Series No.114 (1995).

[6] International Safety Organization Radiation Protection – Dose assessment for the monitoring of workers for internal radiation. ISO 27048 (2011).

[7] Venkataraman K., Somasundaram S. and Soman S. D. An evaluation of radiation protection standards for Indian conditions. Health Physics, 9,(1963), 647-52.

[8] Dang H. S., Jaiswal D. D., Parameswarn M. and Krishnamony S. Physical, anatomical and metabolic data for reference Indian Man-A proposal. Report BARC/1994/E/043, Bhabha Atomic Research Centre, Bombay, India (1994).

[9] Gary H Kramer, Kevin Capello, Albert Chian, and Barry M. Hauck HML's whole body counter: Measuring highly radioactive persons Health physics 97, (2009), 630-636.

[10] Hunt, J. G., Malátová, I., Foltánová, S. *Calculation and Measurement of Calibration Factors for Bone-Surface Seeking Low Energy Gamma Emitters and Determination of 241 Am Activity in a real case of Internal Contamination.* Radiat. Prot. Dosim. **82**(3), (1999), 215-218.

[11] Fayez H.H and Al-Ghorabie. Development of a computer code using the EGS4 Monte Carlo simulation system to evaluate the response of a NaI(Tl) detector to photons with energies below 300 keV. Applied Radiation and Isotopes 64(1), (2006), 85-92.

[12] Mazumdar I, Anil kumar G, Gothe D. A. and Manchanda R. K. A $LaBr_3$: Ce-NaI(Tl) Phoswich for X- and low energy γ-ray astronomy. Nuclear Instruments and Methods in Physics Research A 623(3), (2010), 995-998.

[13] Emmett M.B and Hollenbach D.F. Current status of the Oak ridge Monte Carlo codes MORSE/SAS4 & KENO. Advanced Monte Carlo for radiation physics, Particle transport simulation and applications. Proceedings of the Monte Carlo 2000 conference, Lisbon, 23-26, October 2000.

[14] Marie Hansson and Mats Isaksson. A Monte Carlo (MC) based individual calibration method for in-vivo x-ray fluorescence analysis (XRF). Physics in Medicine Biology 52 (2007), 2009-2019.

[15] Nimal J.C and Vergnaud T. Tripoli-3 A Neutron/Photon Monte Carlo Transport code. Advanced Monte Carlo for radiation physics, Particle transport simulation and applications. Proceedings of the Monte Carlo 2000 conference, Lisbon, 23-26, October 2000.

[16] Krstic D. and Nikezic D. Efficiency of wholebody counter for various body size calculated by MCNP5 software. Radiation Protection Dosimetry 152(1-3), (2012), 179-183.

[17] Gary H Kramer, Linda C Burns and Suzanne Yiu Lung counting: evaluation of uncertainties' in lung burden estimation arising from a heterogeneous lung deposition using Monte Carlo code simulations. Radiation Protection dosimetry 74(3), (1997), 173-182.

[18] Gary H. Kramer, Linda C. Burns and Steven Guerriere Monte Carlo simulation of a scanning detector whole body counter and the effect of BOMAB phantom size on the calibration. Health Physics 83(4), (2002), 526-533.

[19] Fisher H.L Jr. and Synder W S variation of dose delivered by ^{137}Cs as a function of body size from infancy to adulthood. ORNL-4007, Oak Ridge National Laboratory, Oak Ridge, TN, 221-28 (1996).

[20] Zankl M. and Wittman A. The adult male voxel model 'Golem' segmented from the whole body CT patient data.Radiation Environment Biophysics, 40,(2001),153-62.

[21] Moraleda M, Gomez-Ros J M, Lopez M A, Navarro T, Navarro J F A MCNP-based calibration method and a voxel phantom for in-vivo monitoring of 241Am in skull Nuclear Instruments and Methods in Physics Research A 526, (2004), 551-559.

[22] Minal Y Nadar, Aktar D.K, Patni H.K, Singh I.S, Mishra L, Rao D.D, Pradeepkumar K.S Monte Carlo simulation of skull and knee voxel phantoms for the assessment of skeletal burdens of low energy emitters. Radiation Protection Dosimetry. Doi:10.1093/rpd/nct367 (2013).

[23] International Commission on Radiological Protection. Adult reference computational phantoms. ICRP Publication110. Ann. ICRP 39(2), oxford: Elsevier (2009).

[24] Briesmeister J.F. (Editor). MCNP-A general Monte Carlo N-particle transport code. Los Alamos National Laboratory, LA–13709–M Version 4B (1997).

LIST OF FIGURES

LIST OF TABLES

Chapter -1

Introduction

1.0 Exposure - General Concept

Mankind has been constantly subjected to varying levels of exposure to ionizing radiations from nature and the phenomenon is as old as mankind itself. Significant fraction of the exposure comes from the cosmic rays and the radioactive materials like uranium, thorium, potassium etc., present in the earth's crust in varying levels. The discovery of artificial sources of radioactivity and its potential for peaceful applications not only initiated a revolution in its industrial and societal application but also initiated the birth of occupational exposures to ionizing radiation. Occupational exposure to ionizing radiation can occur in a range of industries, such as nuclear fuel cycle facilities (mining, milling, fuel fabrication, power generation, reprocessing and waste management), industrial radiography, and nuclear medicine (diagnosis and therapy). The uncontrolled use of radioactivity in the early days has resulted in the demonstration of the harmful effects of ionizing radiation to mankind. In view of this, protection of workers from radiation by controlling the exposures and keeping them "as low as reasonably achievable" was felt absolutely essential. Accurate estimation of doses received by the workers due to external and the internal exposures is also of paramount importance. It is also needed for the protection of the members of the public, both in normal as well as in accidental conditions of the nuclear facility.

Protection of occupational workers and members of the public are essential for the safe use of radiation/ radioactive materials. According to the system of dose limitation adopted by the international and national regulatory organisations, exposures resulting from a practice

need to be justified, optimised and kept within the dose limits prescribed[1,2]. In order to demonstrate compliance with the requirements of dose limits, the potential for exposure to the workers must be identified and a comprehensive, state-of-art personal exposure monitoring system shall be in place. Accordingly, each radiation facility should have a program to monitor the internal and the external exposures, so that the total exposure is kept within the prescribed annual dose limits [1].

Exposures to ionising radiation occur in two ways namely through internal and external means. While the external exposure is caused by the radioactive source present outside the body, the internal exposure arises due to the presence of a radionuclide that find their way into the body through inhalation, ingestion, injection and/or absorption during the routine course of work. In the case of occupational workers, inhalation [2] is the major pathway of exposure that contributes to about 90% of the internal exposures. Radiation dose received by the organs or the whole body from internal exposure can be significant even for small intakes of alpha emitting radioactive material. Both the external and the internal doses should be assessed to determine the total 'effective dose' accumulated by the workers.

External exposures are directly measured using the well-established Thermo Luminescent Dosimeter. Determination of the doses from internal exposures is not straightforward and it is rather complicated. As internal doses cannot be measured directly, they can only be inferred from the measured quantities such as the retained activity in the body (in-vivo), excreted activity (in-vitro) or airborne concentrations of the radioactive material.

In case of *in vitro* monitoring internal contamination is estimated from the biological samples of the individuals. While in *in-vivo* monitoring, very sensitive large volume detectors are kept near the subject to detect the penetrating X-ray/gamma radiation from the internal sources. While both the methods have their advantages and limitations, they are sensitive

enough to detect radioactivity levels in occupational workers to meet the regulatory requirement.

From the measured activity (both in-vivo and in-vitro) the intake is estimated using retention factors or the excretion rates deduced from the bio-kinetic models of each radionuclides. Internal dose is then calculated using the dose coefficient (committed effective dose per unit intake) of the radionuclide of interest specified for inhalation or ingestion as appropriate. Dose coefficients for different radionuclides are given by International Commission on Radiological Protection(ICRP) [3].

The dissertation is restricted to studies related to in-vivo monitoring.

1.1 In-vivo monitoring

In-vivo monitoring is the direct measurement of the contents of radionuclides in the body using external detectors. This method is rapid (3-30 minutes) with detection limits far below the Annual Limits on Intake (ALI) levels of many of the radionuclides. However, this technique is only feasible for radionuclides that emit penetrating radiation (X, γ or energetic β particles) that can travel through the body to be detected by the external detector.

In-vivo monitoring is a form of gamma-ray spectroscopy with a set of energy sensitive radiation detectors, e.g. scintillation or semiconductor detectors, and with the subject in a shielded chamber. The speed and simplicity of the X-ray and gamma spectrometry analysis enables us to identify and quantify the incorporated radionuclides.

Though the main route of intake is by inhalation, the radionuclides get transported to various parts of the body depending on their physiochemical properties and biokinetic properties [4,5]. Hence it is important to monitor not only the initial site of interest but also other organs or the entire body in some specific cases. So any in-vivo monitoring facility

should have wholebody monitors as well as different types of partial body monitors like the thyroid monitor, the lung monitor, the skull monitor, the knee monitor etc.

The estimation of internal exposure involves four major steps: (i) identification of the radionuclides (ii) quantification (iii) estimation of the intake and (iv) dose estimation.

A variety of in-vivo monitors had been used in the past. The following section gives the history of in-vivo monitors.

The discovery of X-rays and radioactivity in the 19^{th} century was considered as a boon for the medical community. Within about a decade or two, without realizing its ill effects, the applications of ionizing radiation had spread far and wide resulting in uncontrolled exposures. The harmful effects of these radiations came into limelight in the early 1920's through early death of several radiologists and radium dial painters [6]. The symptoms in all the cases were similar like necrosis of the jaw, ulcer of the gum and aplastic anemia. These deaths resulted due to the large intakes of radium by the workers, who were involved in the dial painting industry. Martland [6] had measured the body content of radium through the measurement of radon or thoron, in the exhaled air of the subject. Later in 1929, Schlunt et al. [7], used quartz electroscope to detect radium and mesothorium in living persons. In 1937, Evans combined the gamma ray measurement and the radon-in-breathe measurement to measure the body burden of radium. The gamma rays emitted from the body were measured using a Geiger Muller tube. The detector was kept at the centre of a 1 m circle and the patient formed an arc on the circle [8]. This arrangement was to minimize the variation in the response of the detector due to uneven distribution of radioactivity in the skeleton.

In 1947 single 13 liters ionization chamber placed at a distance of 35 cm from the subject was used to measure the radium content. High pressure ionization chambers used by Sievert was sensitive enough to measure natural gamma activity in human beings. The equipment was placed in an underground laboratory beneath some 55 m of rock in order to reduce the

cosmic-ray background [9]. In 1950s liquid scintillators were developed to assess the internal exposure to tritium. In 1956 Cowan and Reines built a huge liquid scintillator with 90 PMTs to detect neutrino which were later used for detecting natural gamma activity like ^{40}K inside the human subjects. The subject was crouched into the Liquid scintillator detector containing 400 gallons of scintillator and surrounded by an iron room. Liquid scintillator based whole body counters called Human counter (HUMCO-I & II) were built in 1956 and 1959 respectively to measure the natural radionuclide ^{40}K present in the humans. It was a 4π geometry wholebody counter.

The discovery of neutron in 1932 led to the subsequent construction of a large number of nuclear reactors and accelerators, which produced many artificial radionuclides. These radionuclides emit gamma photons with wide energy range. This necessitated the requirement of in-vivo monitoring based on gamma spectrometer. Sodium iodide (NaI) detectors pioneered by Miller and Marinelli in 1956 [10] fulfilled this requirement. In 1958 Burch and Bird evolved a plastic scintillator for wholebody counting[11].

In order to improve the signal to background ratio, massive shielding is required to reduce the interference from the cosmic radiation and the terrestrial radiation. First steel cubicle shielding was erected in 1954. Later in 1960 a steel room was constructed at the Argonne National Laboratory. A NaI(Tl) detector was housed inside this room with a counting geometry of 40cm arc (Argonne chair) and used for in-vivo monitoring of radionuclides with energy ranging from 100 keV to 3000 keV. The person sat in a reclining chair and the detector was suspended above the pelvic area. In the early 1965's the arc chair geometry was replaced by scanning bed geometry where the subject lays flat on a bed and multiple detectors were positioned as an arc under the bed. In the same year, Palmer and Roesch designed the scanning shadow shield counter, which did not require a large shielded room[12].

With the advent of fuel reprocessing facilities, the need for monitoring actinides arose. Initially xenon filled proportional counter [13] and thin NaI detector [14] were tested for the detection of low energy X-ray or gamma emissions from actinides. Measurement using the xenon filled proportional counter was abandoned because of their high background and low efficiency. In 1966, NaI detector of one millimeter thickness and 12.5 cm diameter with 0.025mm beryllium window was used to measure the actinides in human subject. Thin detectors were chosen in order to have less background as the background varies with detector volume. Actinides are basically alpha emitters and the allowable limits are very low. So in order to have lesser minimum detectable activity, the counting system should have low background. But the background in the low energy region is high. Both these factors necessitated the development of alternate detectors with reduced background. In 1968 Laurer came out with the concept of the sandwich of two phosphors for the detection of low levels of radionuclides which replaced thin NaI detector. Laurer used a thin CsI backed by a thick NaIcrystal [15], which eventually gave rise to the current Phoswich detector consisting of a thin NaI backed by a thick CsI. The inherent anticoincidence counting capability of the Phoswich detector reduced the background in the low energy region of the spectrum due to Compton scattering of high energy gamma photons when they are used along with pulse shape discrimination (PSD) electronics. Though the specially designed scintillators have reduced background interference they suffer from poor energy resolution, which make them unable to differentiate between the characteristic energy lines of actinides.

Semi conductor detectors having high resolution replaced the scintillator detectors in early 1970's. The most common semiconductor detectors are those involving germanium (Ge) crystals that have excellent energy resolution (within few keV) enabling identification of nuclides that have very little difference in their gamma energies. In the late 1970s, the coaxial detectors were used to estimate the 186keV photon from ^{235}U and also for the estimation of High Energy gamma Photons(HEPs). These crystals however required continuous cooling

with liquid nitrogen. Detectors equipped with electric cryostats were then developed to replace liquid nitrogen cooling systems.

In the mid-eighties, in order to increase the geometric efficiency, an array of planar High Purity Germanium (HPGe) detectors was developed. Although the detection area of these arrays is much lower as compared to 200 mm diameter Phoswich, their inherent superior energy resolution, compensated for their smaller area, as the identification of the radionuclides was possible at much lower levels of radioactivity. In the late eighties, the technology of growing coaxial HPGe detectors improved and crystals with large diameter and volume were developed for use in in-vivo monitoring. This special coaxial geometry resulted in the reduction of the detector capacitance compared with the earlier conventional planar detectors. This reduction in the capacitance helped in improving its energy resolution compared with the best available planar detector. These detectors were designated as LOw energy coAXial (LOAX) HPGe detectors.

New series of semi-conductor counting systems functioning at room temperature such as silicon (Si) and Cadmium-telluride (CdTe) are being developed to avoid the cooling systems. Moreover, silicon crystal has a higher sensitivity (up to three times) when compared to the germanium crystal. This enables a better distinction of the LEPs emitted by ^{239}Pu and ^{241}Am. Si based pin diodes were also used for lung monitoring of actinides [16].

In-vivo monitoring requires a careful choice of detectors coupled with electronics and calibration using appropriate physical/computational phantoms. A variety of detectors are available today. The choice of the detector shall be based on the energy range of the measurement, the resolution required, the efficiency, the minimum detectable levels, etc. The available wholebody monitoring techniques can be classified as follows (a) single-detector arc technique (b) single detector chair technique, (c) single detector scanning technique (d)

multi detector chair technique (e) multi detector stretcher technique (f) multi detector scanning technique (g) 2π large detector technique and (h) 4π large detector technique [17].

1.2 Calibration of the counting system using physical phantoms

Calibration is the first, essential and critical step for dose estimation. Calibration is the process of relating the counts in the photopeak region of the gamma ray spectrum (pulse height distribution) to the activity in the subject.

The calibration procedure should reproduce, with maximum realism, the geometry of the actual measurement. For in-vivo monitoring, calibration is carried out using physical phantoms, similar in composition and morphology to the human body with different radionuclides of known activity and expected distribution. The material used in the physical phantom should simulate the attenuation characteristics of the human tissue. The calibration procedures have also evolved from point source calibration through human volunteers, physical phantoms to numerical voxel phantoms.

Studies carried out earlier indicate use of point sources could yield accurate calibration factors (efficiency values) for in-vivo monitoring applications. Evan's 1m arc method using Geiger Muller(GM) tubes was calibrated using point sources which was reported to yield calibration factors within a few percent accuracy [17]. The results of the studies carried out subsequently have shown that the point source calibration is valid only for geometries wherein the source to detector distances are fairly large(typically 1 m or more) and less reliable for systems having limited number of detectors kept close to the subject or for scanning mode geometry. Later multiple sources kept inside simple phantoms made of plastic bottles were used to calibrate HUMCO I & II to correct for the attenuation. This technique was limited to the measurement of a few radionuclides which have well separated energies as the spectrum did not match in the lower energy regions to that obtained with human beings [17]. In order to overcome this, human volunteers who inhaled ^{42}K [17] were

used for the calibration. While this method yielded accurate results, it is not desirable and feasible either due the chemical and radio toxicity of the element. Later, the volunteers inhaled aerosol incorporating a short-lived radionuclides which has the same energy of emission as the radionuclide of interest. For LEPs along with that particular radionuclide another high energy photon emitting radionuclide was also used [18].

Subsequently the plastic bottle phantom was standardized and made using 10 polyethylene containers which were arranged to represent human beings and were termed as Bottle Manikin ABsorber (BOMAB) phantoms [19]. These phantoms were made in different sizes to represent different age groups. BOMAB phantom is the most convenient, general purpose wholebody anthropometric phantom. Sliced BOMAB phantom has also been developed recently [20]. Later Roentgen Equivalent Man Absorption (REMAB) and Roentgen Equivalent Man CALibration (REMCAL) wholebody phantoms were used for the calibration of HUMCO I and II counters. REMCAL phantom developed specifically for in-vivo monitor calibration consists of an anthropomorphic plastic shell with cavities for major organ like lungs, thyroid, heart, kidneys, spleen, pancreas, stomach, bladder and simplified lower intestinal tract. Phantom and the organs were filled with water or other liquid based tissue substitutes and radioactive solutions. REMAB phantom is an anthropomorphic water filled plastic shell of thickness 2 to 3 mm containing a complete skeleton, which represented a 175 cm tall man weighing 73 kg. The source organs were simulated inside the shell for calibration. This phantom was a closer approximation to anthropomorphic phantoms [21] and is used for calibration as well as exposure estimation. Even the cadavers of the humans contaminated with radionuclides were used for the calibration of NaI based wholebody counters. Later one liter volume bags filled with saline water containing potassium were used to calibrate the counting systems [22]. Apart from the above mentioned wholebody phantoms, partial body phantoms like thyroid, skull, knee, chest phantoms were developed

for measuring radionuclides which get deposited in specific organ. Two different types of phantoms for measuring the ^{131}I present in the thyroid are the neck phantom having a neck vertebra and a thyroid gland and the other one constructed with two coaxial cylinders(American National Standard Institute (ANSI) phantom).

In the year 1976 the first realistic tissue equivalent chest phantom with internal organs was developed at Lawrence Livermore National Laboratory [23] to calibrate the lung monitors used for the estimation of actinides. Actinides are measured using the LEPs which are heavily attenuated in the chest tissue. The attenuation depends on the chest wall thickness which varies with individual. So LLNL phantom is anthropomorphic and contains various chest plate overlays representing individuals with different chest wall compositions and thicknesses. This phantom was made of tissue equivalent materials like polyurethane based muscle substitute, adulterated with $CaCO_3$ additive as bone substitute and foamed polyurethane as lung substitute [24]. The first generation of LLNL phantom contains a human skeleton with the marrow cavity filled with unit density material and organs made of tissue equivalent materials. In the second generation of LLNL only the anterior tissue equivalent bones were used resulting in limitations for posterior lung counting for which the spine, back ribs and scapula would be required which were later introduced in second and the third generation phantoms that are commercially available. LLNL phantom chest overlays were developed with variable fat and muscle compositions. Overlays are commercially available in three fat/muscle combinations(87/13, 50/50,0/100) and in four thicknesses [25]. This phantom includes several organs and components such as the lungs, the liver, the heart, the lymph nodes, the ribs and the sternum. The activity is uniformly distributed in the lungs and the liver, which can be separately used depending on the study. As the LLNL phantom represents a western population, an Asian reference torso phantom with various chest

overlays was developed in 1988 by Japan Atomic Energy Research Institute (JAERI) to represent the Asian subjects [26].

In 2002, skull phantoms [27] were developed for the estimation of the skeletal burden of bone seeking radionuclides. Spitz et al. [28] fabricated a knee phantom in 2000, for bone in-vivo measurements. The knee phantom consists of femur, patella, tibia and fibula. The phantom is constructed using human tissue substitute which is made of polyurethane, $CaCo_3$ and other trace materials and has the same density, attenuation coefficient and effective 'Z' as that of human muscle and trabecular bone. In-vivo measurement of the knee is a desirable alternative to the head if facial contamination is present. Measurements have also shown that a single knee phantom exhibits the same detection efficiency as that using the skull. There are nearly 23 bone seeking radionuclides.

Nowadays a variety of phantoms like BOMAB, REMCAL, and REMAB for the calibration of wholebody monitors and thyroid, LLNL, JAERI, knee, skull and bone phantoms are available for the calibration of partial body monitors

1.2.1 Limitations of physical phantoms

Though a variety of physical phantoms have been developed, they have certain limitations such as (i) they represent the standard man and not the individuals being monitored (ii) they have only fixed radionuclide distribution (either homogenous or heterogeneous) (iii) they require multiple organ sets for various radionuclides (iv)manufacturing technique of the anthropomorphic phantoms, required for the calibration of actinide monitors, is very complex. Fabrication requires not only handling of radioactive substances but also a special protection so that there is no contamination of the subject /phantom. They also suffer from limited shelf life due to the choice of material and decay of radionuclides. Each laboratory should have a family of phantoms with dimensions suitably scaled to represent individuals of

different sizes. The purchase and use of a family of phantoms can be expensive and time consuming.

Moreover, no anthropomorphic physical female phantom has been developed for low energy measurements. The use of typical male based calibration factors results in high uncertainties especially for low energy photon emitters. Numerical calibration can be used as a supplement to physical calibration to fill the gaps in the physical phantom calibration procedures.

1.3 Measurement uncertainties

Radioactivity is a statistical process and any radiation based measurements has a number of uncertainties associated with it. In-vivo monitoring is no exception to that. These uncertainties influence the activity estimation and consequently the committed effective dose. While measurement uncertainties are common to practically all counting systems, some of the uncertainties specific to wholebody counting include variations in the body size and shape, heterogeneous distributions of radionuclides in the target structure, interference from natural background radiation etc. For example, international review reveals that the dimensional and compositional differences in the chest wall thicknesses of the physical phantoms and the actual subjects can result in uncertainties as high as 80% in lung measurements. Moreover, the variation in source distribution has also shown to be responsible for uncertainties as high as 66% [29,30]. Many studies have proved that the placement of the detector with respect to the organ monitored (measurement geometry) is critical [31] and even small changes in positioning can result in large deviations in the detector counting efficiency for low energy photon measurements [32]. The magnitudes of the uncertainties caused by different parameters are given in ISO document [33].

To minimize these uncertainties, theoretical calibration method has been successfully applied to numerically calibrate in-vivo counting systems [34]. Numerical simulation can also

help to optimize the detector geometry which may not be always feasible through experimentation.

1.4 Basis of the numerical calibration

Boltzmann transport equation (BTE) is used to describe the transport of radiation through a medium. Deterministic and probabilistic approaches' are used to solve the BTE numerically. Deterministic methods include the Finite Volume Method (FVM) and the Discrete Ordinates Method (DOM) [35]. These methods calculate the photopeak attenuation without generating the full spectrum and offer a good compromise between accuracy and computational requirements.

However, deterministic algorithms are sometimes inefficient to compute an exact result or to model complex problems. The Monte Carlo (MC) method was thus introduced to overcome such transport problems.

1.4.1 Monte Carlo approach for particle transport

MC methods are a class of computational algorithms that rely on repeated random sampling to compute their results and are most suited when the deterministic methods fail to give reliable results [36]. MC methods are designed to solve complicated three-dimensional, time-dependent problems and allow detailed representation of all the aspects of the physical data. Radioactive transformations and inherent nuclear disintegrations and rearrangements involve statistical processes. This is also the case for the radiation interactions with materials and the inherent parameters such as the absorbed dose in an organ or the measured energy spectrum by a detector. The parameter of interest, the energy deposited in a given volume for example, can be written as a theoretical mean of random variables and its estimation is equivalent to solve a statistical problem that requires computing an integral calculation.

Different MC codes have been developed to simulate the particle transport. The main existing differences between the available codes are the cross sections data used and the approximations used in the physics of interactions realized to transport the particles. The most famous MC codes used in internal dosimetry are (i) Monte Carlo N-particle (MCNP) [37] and Monte Carlo N-Particle Extended (MCNPX) [38] (ii) Electron Gamma Shower (EGS) and Electron Gamma Shower National Research Council (EGSnrc) (iii) Penetration and ENErgy LOss of Positrons and Electrons (PENELOPE) (iv)GEometry ANd Tracking (GEANT4) [39].

Among the above mentioned codes, MCNP is used in this study and it is discussed in detail in the following section.

MCNP is a powerful, well-tested and widely used MC code developed by Los Alamos, to simulate the transport of 'n' different types of particles including neutrons, photons and electrons. The MC method is a statistical approach for the interaction of radiation with matter that can efficiently resolve the transport equation by tracking large histories of particle. To solve the transport equation, the MC method tracks individual particles from the source through the medium till its death (i.e., absorption and escape), and records their average behavior in the form of tallies. The accuracy of the estimate is dependent upon the appropriateness of the stochastic model to represent the true physical process.

The code enables modeling of all the elements included in any experimental in-vivo measurement (person, detector, shield etc.), simulating a wide variety of photon sources (point, surface or volume) whose distribution can be extremely heterogeneous and covers an energy range from 10 keV to 100 GeV, simulating the particles transport in different media (air, tissue, water, detector etc.) and obtaining multiple outputs and simulation results (including the energy deposit spectrum, particle's fluence etc.).

The MC method simulates the transport of particles throughout a three dimensional (3D) geometry taking into account all the possible interactions with matter. Basic nuclear and atomic data such as interaction cross sections, interaction type and location, energy loss or exchange, secondary particles generated etc., are often taken from available data libraries to determine the probability density function of a random variable which characterizes a history, a particle or a track. Point wise photon cross sections are used in A Compact ENDF (ACE) format. MCLIB04 photo atomic data library is used in this work and these data are taken from ENDF/BVI release 8 including cross section, form factor, scattering function and fluorescence data. These data are derived originally from Evaluated Photon Data Library (EPDL97).

Gamma photons interact mainly with the electronic cloud through photoelectric absorption, coherent and Compton scattering or pair production. Applying the MC method for in-vivo monitoring consists of:

- Modeling the nature and the distribution of the internal contamination in a numerical phantom
- Simulating the counting system and positioning it in accordance with the real measurement geometry.
- Generating the pulse height spectra (in the detectors) with MC calculations
- Estimating the detection efficiency from the simulated spectra

The output of the MC calculations has to be normalized to correspond to the measurement units. Monte Carlo codes normalize their results to one emitted particle so that the result is independent of the number of simulated particles. PULSE HEIGHT tally gives the number of events in the energy bins per photon emitted from the source. The area under the photopeak gives the detector calibration factor in terms of CPS/photon, which is corrected for the yield of the gamma rays to obtain the calibration factor in terms of CPS/Bq. The MC method thus enables a numerical calibration of in-vivo counting systems which are difficult to obtain

through experiments. Monte Carlo calculations can be used to establish the calibration factor for any non-standard geometry, to energies of user interest, to study the variation in calibration factor due to various geometrical factors like source distribution, detector placement, biometric parameters etc., to optimize the measurement parameters [40] like detector geometry during design, to compare different types of calibration phantoms and so on.

1.4.2 Computational phantoms

Computational phantoms are also required along with the simulation codes to carry out the theoretical calibration. These phantoms have a realistic and personalized representation of the monitored subject. Many research groups have been working on the design and development of computational phantoms. Following sections give a brief review of them.

1.5 Literature on numerical phantom studies - A review

The computational phantoms fall into two categories (i) mathematical phantoms and (ii) voxel phantoms [41].

1.5.1 Mathematical phantoms

Mathematical phantoms are constructed using simple geometrical shapes like elliptical cylinders, spheres, ellipsoids, spheroids, right circular cylinders etc. The mathematical phantoms were primarily developed [42,43] for dosimetric studies mainly by the Medical Internal Radiation Dose committee (MIRD). The aim was to approximate the main organ characteristics (shape, size, localization) with equations to minimize the dose computation time. Most of the mathematical phantoms are based on Snyder's phantoms which represent a hermaphrodite Caucasian adult. The Oak Ridge National Laboratory (ORNL) developed mathematical phantoms representing children of different ages [44]. Mathematical dosimetric models were developed for the age specific internal organs of the anthropomorphic phantom

of MIRD [45,46,47]. Male and female adult phantoms called Adam and Eva of the Helmholtz Zentrum München (HMGU) have been elaborated using the MIRD model [48]. Body height and weight as well as the organ masses of these phantoms are in accordance with the Reference Man data. Three phantoms representing the different gestation stages (3, 6 and 9 months) of a Caucasian pregnant female were developed [49]. Phantoms representing male and females of different dimensions were also defined [50].

In addition to all these phantoms which represent Caucasian human being, a Korean adult male phantom was developed by Park et al. [51]and a Japanese phantom was elaborated for Hiroshima survivor's dosimetric studies. Indian reference phantom [52] representing the reference Indian man [53,54,55] was also developed, which was derived by introducing scaling factors based on the average weight and height of the Indian adult male as compared to the MIRD values. Heights of the organs in the Indian Reference Man were obtained by applying the ratio of the height of an Indian adult to the height of the ICRP reference man. Intercepts of the organs on the other co-ordinate axes of the MIRD phantom and their values were so adjusted that the volume of an organ [56] in the Indian reference man is reduced by a factor of 0.8(56/70). Biju et al. [57] developed a mathematical phantom of Indian adult akin to MIRD phantom by scaling organ along 'z' direction according to the trunk length only and by adjusting the remaining two dimensions so as to give the desired organ volume. The geometrical formulations defining the different organs and regions of the body are given by mathematical expressions [58]. These phantoms do not take a holistic view of the differences with regard to the shape and size of body organ of Indian adult. The length, width and depth of the adult trunk of ICRP reference man was scaled to correspond to the values of the Indian reference man. The same scaling factors have been used to scale the size of various organs in all the three dimensions. Finally, a 4D Mathematical Cardiac Torso (MCAT) phantom was developed to model the respiratory mechanisms and the organ motion [59,60].

Nevertheless, these mathematical descriptions remain very simplified and approximate.

1.5.2 Application of Mathematical phantoms

There is a large body of literature quoting the application of MIRD phantom for internal dosimetry studies, to calculate the dose distribution in the body from a gamma-emitter present in an organ and to estimate the specific absorbed fractions for mono energetic photon sources distributed inside the body. Mathematical phantoms have also been used for the external dosimetry studies to determine the effective dose in the case of external exposures in nuclear power plants. Moreover, stylized phantoms were adopted for nuclear medicine research activities [61] specifically Single Photon Emission Computed Tomography (SPECT) and Positron Emission Tomography (PET).

In the field of in-vivo monitoring Kramer et.al [62] has carried out the calibration of whole body monitors for measuring high active subjects who may have been internally contaminated following an accidental or intentional release of radioactivity, using MC simulations. Minimum Detectable Activity (MDA) was also calculated for these configurations. It was found that MDA for activation/fission products is sufficient to detect doses as low as a fraction of mSv and as high as 1 Sv with dead time remaining less than 30% depending on the counting configuration. Kristic et al. [63] has quoted that the ^{137}Cs calibration factor of the whole body counters varies by a factor 2 from adult to newborn. Kramer [64] discusses the effect of the subject size on the estimation of the activity using the wholebody counter and the thyroid monitor. The study showed that the activity can be underestimated by a factor of 2 or overestimated by a factor of 3.4 for 662 keV and as the photon energy decreases these uncertainties could double in whole body counters. In thyroid monitor the error can be within ±20% if there is no collimation and the distance between the neck and detector is 15 cm.

Damet [65] showed that the calibration of the thyroid detector with Swiss reference phantom has led to an underestimation of the activity of ^{131}I by 20% and that of ^{125}I by 40-60% and variation in either the size or mass of the thyroid had no effect on the measured activity. The position of the thyroid inside the neck is a cornerstone for an accurate measurement. Marzocchi [66] studied the influence of the phantom choice, the distance of the detector from the subject, displacement of the source within the body on the counting calibration factor using MC simulation. Scanning detector counting system was simulated by putting the detector in different places relative to the phantom and averaging the results [67]. The efficiency results of the MCNP simulation for scanning geometry were 97% of the measured calibration factors corresponding to the scanning geometry. Size dependent factors vary with both phantom size as well as photon energy which were found to be in the range of 2.4 to 0.66. Kramer et.al [68] has used the mathematical phantom to estimate the uncertainty of activity in the lung from heterogeneous deposition using an array of Germanium detectors and has concluded that detector arrays will minimize the uncertainties arising from the geometry of the lung deposition.

1.5.3 Voxel phantoms

The MIRD phantoms, although provide near exact geometries of human subjects for use with MC radiation transport calculations, are only approximations to real human anatomy. The representation of the internal organs is crude and the models represent only most general geometry of each organ. To make the models to be more realistic representative for dosimetric purposes, alternate models were developed about 30 years ago based upon 3-D imaging techniques like computed tomography (CT) and magnetic resonance imaging (MRI). The tomography models, also called voxel (VOlume X ELement) models of human anatomy, represent large arrays of voxels that are labeled as a tissue type. Volume elements are pixels multiplied by the thickness of the slice. Such image segmented voxel data are formatted to be

compatible to MC radiation transport codes. The available MC calculation codes recognize voxel geometries as the main format for complex geometry representations.

Voxel phantoms and MC technique are applied to the areas of calibration of in-vivo measurement systems. The main advantage of the use of voxel phantoms is their precise definition of body structures, and the ease with which their physical dimensions can be changed. Due to the advances in computer technology; it is possible to create more complex figures representing realistic 3D organs by means of voxel geometries. They are represented as repeated structures of basic elements such as parallelepiped or cube. Voxel phantoms were first introduced by Gibbs et al. [69], to determine patient dose from dental radiography. This work was next extended to the development of two children voxel models: one representing an eight-week old subject called BABY, and the other one a seven year old subject called CHILD [70,71].

'VOXELMAN' was created from the thoracic and the head CT scan images of a 35-year-old patient having a height of 178 cm and a weight of 70 kg [72]. This phantom was next upgraded by adding arms and the legs derived from the "Visible Human" project [73]. The model was then made to fit the ICRP-89 [74]recommendation, regarding the organ weights and a new phantom called MAX, was generated [75]. A female model of the MAX phantom was also developed at the Brazilian Department of Nuclear Energy and was named FAX [76].The MAX and the FAX were considered to be representative of the reference individual for a long time. Health Protection Agency developed NORMAN (NORmal MAN) [77]and NAOMI (aNAtOMIcal model) [78] voxel phantoms, starting from MRI images of healthy volunteers. The voxel dimensions of the male model have been scaled to match the body height and weight of the old Reference Man [79], that is a body weight of 70 kg and a body height of 170 cm. Jones [80] later modified the NORMAN phantom to match the newer referential [74] body height and weight (176 cm, 73 kg). The ADELAIDE voxel phantom

representing a 14-year-old girl was used to determine the absorbed organ doses from the computed tomography examinations [81]. The VIP-Man [82] (VIsible Photographic Man), part of the "Visible Human" project, was created at the Rensselear Polytechnic Institute starting from the colored photographic images obtained after the dissection of a human donor. An adult male voxel phantom 'Golem' was segmented from the wholebody medical image data of a 38 year old living person [83] who had the external dimensions close to those of the ICRP Reference Man. Shi and Xu [84] developed a 30-week pregnant female voxel phantom from CT images.

Voxel anthropomorphic phantoms were also designed to fit subjects of various ethnic origins. CNMAN is a voxel phantom developed at the Chinese Radiation Protection Institute [85] to represent a Chinese adult male cadaver (170 cm, 65 kg). Other Japanese and Korean phantoms were also designed to fit the Asiatic population and its particular body type and morphology [86,87]. ICRP recommended new reference male and female voxel Computational Phantoms for dosimetric purposes in its publication 110 [88]. These phantoms match the human subject, not only in terms of the organ weights, geometries and shapes, but also in regards of the different materials, densities and chemical composition to simulate realistic radiation interaction with matter. In these phantoms, over 140 different structures were defined to fit, with maximum realism, the reference individual.

1.5.4 Application of voxel phantoms

Voxel phantoms, introduced in the early 80s, have significantly improved the internal and the external dosimetry when combined with MC simulations [89]. The reliability of such representations in radiation protection has been extensively shown in many studies. Kramer et al. [90] have used voxel geometries to improve the in-vivo monitoring of nuclear workers. Meanwhile, Petoussi-Henss and Zankl [91] have used such phantoms as a tool for the internal dosimetry, radiology and radiation protection and for the environmental exposure

applications. The new ICRP reference voxel phantoms were used to review the previous dose coefficients established using mathematical phantoms. Important and relevant differences were noticed for some specific organs (ICRP 2009) and for the foetus [92], newborn [93] or pediatric cases [94]. The radiation protection consequences due to the body type difference between Asian and their ICRP or Caucasian counterparts have been illustrated [95,96,97]. Voxel geometries were also used in the accidental dosimetry reconstruction situations to improve the dose estimation by means of a personalized phantom and correct positioning of the source [98,99].

Voxel phantoms coupled with MC techniques are applied to the areas of calibration of in-vivo measurement systems. The configuration of the HPGe detector based wholebody counters have been optimised to get high efficiency and at the same time low Compton scattering with the aid of MC calculations [100]. MC simulations were carried out using voxel phantom to estimate the calibration factor for knee measurement and thus estimate the activity in the knee phantom [101].The effect of the shape of the head, source distribution and the position of the detector on the calibration factors of skull monitors for the measurement of actinides have been studied [102].

The calibration factors (efficiency value) of whole body counters using BOMAB phantoms were compared [103] with the simulated calibration factors of western reference and Japanese reference voxel phantoms. The calibration factors of the BOMAB phantom were 13% to 2% higher depending on the energy. The Japanese voxel phantom showed higher calibration factor compared to the western voxel. This has proved the requirement for individual specific computational phantoms for lung counter calibration. Numerical calibration of in-vivo counting systems has been demonstrated using a library of 24 female thoracic phantoms with various chest girths (85-120) and cup sizes (A-F) combined with Monte Carlo simulations. The authors have derived a correction factor to be applied to the calibration factors of

Livermore male phantom to establish calibration factors required for female subjects taking into consideration the variation in breast sizes. Also in this work, alternative detector positioning was also investigated to avoid the complexity involved in the estimation of the breast size [104,105].

Simulating an in-vivo measurement requires massive calculating potential and involves significant time. However, simulation is required in emergency situations where anticipated activities could be very high.

As mentioned above, an extensive literature survey has been carried out covering more than 100 references related to numerical calibration of in-vivo monitors using different phantoms including voxel phantoms. It is observed that several leading international laboratories have adopted numerical simulation of calibration factors for their various in-vivo monitors using their own reference standards and compared with the experimental ones. The grey areas in in-vivo monitoring, the motivation, and the objectives are then highlighted along with the structure and organization of the thesis.

1.6 Motivation for the present work

IGCAR, Kalpakkam has the objective of conducting broad based multidisciplinary programme of scientific research and advanced Engineering directed towards the development of sodium cooled Fast Breeder Reactor [FBR] technology in India. Centered around this reactor, a number of radiation facilities such as Radio Metallurgy Laboratory, Radio Chemical Laboratories and the Reprocessing Development Laboratory have been established for post irradiation examination and reprocessing of the irradiated fuels. The Centre has about 1000 occupational radiation workers. To cater to the radiological safety requirements, a radiological safety laboratory was set up consisting of personnel monitoring facilities for external exposures, whole body counting (in-vivo) and bioassay (*in-vitro*) facilities for monitoring internal exposure.

The wholebody counting facility was established in the year 1981. Since then the laboratory is continuously upgraded with many state-of-art in-vivo monitoring systems, calibration phantoms and internal dose assessment software. The in-vivo monitoring facility houses many wholebody monitors like Shielded Chair (SC), Shadow Shield Counter (SSC) and partial body monitors like thyroid monitor and Phoswich based lung monitor. It also has a thin NaI(Tl) detector which can be used for monitoring of actinides in the knees or in wounds. The Phoswich detector is also used for the detection of bone seekers in skull and knee. The detectors used in all these systems are NaI(Tl) or/and CsI(Tl). These systems are calibrated using physical phantoms like in-house built Masonite cut sheet phantom, LLNL phantom, thyroid phantom etc.

Some of these phantoms such as the realistic LLNL phantom don't represent the Indian reference man. The work for the formulation of an Indian reference man was pioneered by Venkataraman [53] in the early sixties and was later continued in the nineties by Dang et al. [54]. These works revealed significant differences in the anatomical and physiological characteristics of western and the Indian populations. The height and weight of an average Indian adult is 164 cm and 63 kg as compared to ICRP adult whose height is 176 cm and weight is 73 kg. The decrease in the organ masses of Indians is not proportional to the total weight difference. For example, the total weight of the Indian lungs is 1000g compared to 1170 g of ICRP reference man. Even among Indians a large variation in the body parameters is observed indicating a need for a group of phantoms representing different races, age groups, sex which is difficult to establish. The calibration factors of Indian reference man and western reference man vary by a maximum of 23% even for high energy gamma photon measurement using shielded chair [106]. The effect of these differences on the calibration factors of LEPs are more significant and could be as high as 200% [33].So there is a need for developing Indian reference phantom for calibrating the in-vivo monitors especially for actinide measurement.

Development of the physical phantom involves complex manufacturing processes as mentioned above and also involves handling of radioactive materials. To perform reliable measurement of the internal contamination, wholebody monitors should be calibrated with phantoms of appropriate sizes. However it is very difficult to have many phantoms which fit various subjects and perform calibration. For the calibration of monitors used for the measurement of actinides, realistic phantoms representing both sexes with different chest wall thicknesses and compositions, different ethnic groups and different morphologies are required. Numerical calibration is gaining more importance because of the ease with which the calibration factors for any geometry, any detector, any energy and size can be simulated. Though extensive work has been carried out in several leading laboratories worldwide, development of similar calibration procedures and its validation is essential for every laboratory since the detector used, the counting geometry adopted, phantoms used etc. are specific to each laboratory. Literature review indicated the following shortcomings: (i)Work using Indian reference man arevery few and needs to be carried out,(ii)The shielded chair counting system used in this study is a custom built and needs a study of its own, (iii)The numerical calibration of the shielded chair counting system using Indian adult reference BOMAB phantom has not been reported in literature, (iv)Comparison of the Compton scattering factors (CSFs) estimated experimentally and theoretically for a NaI based counting system is not reported elsewhere, (v)Theoretical calibration of the shielded chair and the shadow shield counter using Masonite cut sheet phantom is unique and has not been reported elsewhere, (vi)Numerical calibration of single Phoswich detector (a)for low energy gamma emitters present in the lungs, (b)using Indian voxel phantom (c)for high energy measurement are not reported in literature. Hence, indigenous development of these procedures specific to counting systems available at our facility using Indian reference man was felt necessary for generating calibration factors with very low uncertainties.

1.7 Scope of this research work

The main focus of this research work is to establish a numerical calibration procedure for all the in-vivo monitors of whole body counting facility at IGCAR. There are three key prerequisites to demonstrate the applicability of the results of the numerical calibration. The first is a sufficiently accurate description of the problem: a model of the human body or of part of it, a model of the detector, a good description of the geometry and the source used, and the simulation parameters. The second is the proper interpretation of the results, including normalization and proper handling of uncertainties. The third and most crucial is the validation of the simulation using a reference measurement. The validation was done using the virtual models of the available physical phantoms at IGCAR like in-house Masonite cut sheet phantom, LLNL phantom, thyroid phantom. After this validation, modeling was carried out for Indian standard reference phantoms. In addition, generating organ specific calibration factors for our systems for which the phantoms are not available in IGCAR are also highlighted as part of the thesis work (e.g. Female torso, skull, knee).In this work numerical calibration has been carried out for all the in-vivo monitors at IGCAR. Calibration factors of shielded chair were estimated using Indian BOMAB phantom with uniform distribution of radionuclides. Further, Masonite cut sheet phantom and the Indian BOMAB phantom are compared as a calibration tool for shielded chair counting system. This work will help in establishing personalized calibration factors of in-vivo monitoring systems for standard and non-standard geometries to reduce the uncertainty in the estimation of internal contamination of the occupational workers, thereby leading to an accurate estimation of internal exposures. It would also provide an additional technical tool towards building up a robust in-vivo monitoring program at IGCAR.

The thesis is organised as follows:

Chapter 1 provides an overview of the radiation exposure in nuclear industry especially internal exposure. After a brief description of various modes of intake, measurement techniques, choice of instruments and their calibration, use of phantoms and their applicability, and uncertainties associated with the estimation of activity. The need and basis for numerical calibration and the characteristics of the MCNP code are described. A detailed literature review of the numerical calibration of in-vivo monitors especially using voxel phantoms is also presented. Based on this the motivation of the work is presented.

In Chapter 2, after a brief introduction to gamma ray spectrometry, a detailed overview of in-vivo monitoring systems and the phantoms used in this work, along with the experimental calibration procedures are presented.

One of the significant works accomplished in the course of the study is the simulation of in-vivo monitors at IGCAR with in-house developed phantoms which are not available in literature and this is described in Chapter 3. Apart from this, the Chapter also dwells on the modeling carried out for the (a) comparison of Masonite cut sheet phantom (indigenous) and Indian BOMAB phantom as calibration tool for high energy photon measurement. (b) simulation of the scanning geometry of shadow shield counter using static geometry with detectors at multiple locations (c) validation of the detector and voxel phantom modeling for low energy gammas and high energy gammas (d) estimation of calibration factors of actinides for Phoswich detector using ICRP male and female voxel phantoms and (e) development of Indian adult thorax voxel phantom and its use for the calibration of lung monitor.

In chapter 4, the results and analysis of the simulation of various in-vivo monitors described in chapter 3 are presented in detail. The simulations are validated using

experimental results. The estimation of the cross talk in the lung measurement due to the activity in the liver and vice versa, results of comparative study of the theoretical calibration factors for ^{241}Am in the lungs of male and female phantoms and comparison between the theoretical calibration factors for Indian voxel phantom and LLNL phantom is also discussed.

Chapter 5 discusses the estimation of shielded chair counting system for IAEA 95 percentile BOMAB phantom and the estimation of activity of bone seeking radionuclide in the knee phantom, which was received as a part of intercomparison exercise. This chapter also presents the modeling of HPGe detectors of various configurations in different counting geometries for the estimation of calibration factors for ^{241}Am in skull using various virtual skull phantoms which have volume and surface distribution of ^{241}Am as a part of intercomparison exercise. A comparison of the IGCAR simulated calibration factors with that of other participants and with the measured values is also done. It also discusses the estimation of calibration factor for ^{241}Am present in the skull using Phoswich detector which is used as lung monitor at IGCAR.

In chapter 6, the salient features of the results obtained for various in-vivo monitors and phantoms modeled are summarized. The Chapter highlights the significant findings and also dwells on the future directions.

Chapter-2

In-vivo *monitoring: Basics and experimental methods of calibration*

2.0 Introduction

In this chapter various in-vivo monitors both the wholebody monitors and the partial body monitors used in this study are described after a brief introduction to gamma ray spectrometry. The optimization of the pulse shape discrimination (PSD) electronics for the simultaneous measurements of both the LEPs and the HEPs are also described. Various phantoms available for the calibration of the in-vivo monitors and calibration procedures adopted are also discussed.

2.1 Gamma ray spectrometry

In-vivo monitors are based on gamma ray spectrometric measurements, which combine detector, other hardware and software to record the pulse height spectrum of the interacting gamma photons. A typical gamma ray spectrometer consists of a detector, high voltage supply, preamplifier, linear/spectroscopic amplifier and a multichannel analyzer connected to a personal computer [107]. The block diagram of a basic gamma ray spectrometry system is shown in Fig.2.1. Detailed description of each of the modules is available in many references [107,108,109]. Gamma emission characteristics of various radionuclides used for the efficiency calibration of in-vivo monitors are summarized in Table 2.1 [110].

Detector used for in-vivo monitoring should be of high Z material so that it can detect the highly penetrating gamma rays with wide varying energies as indicated in Table 2.1.

`

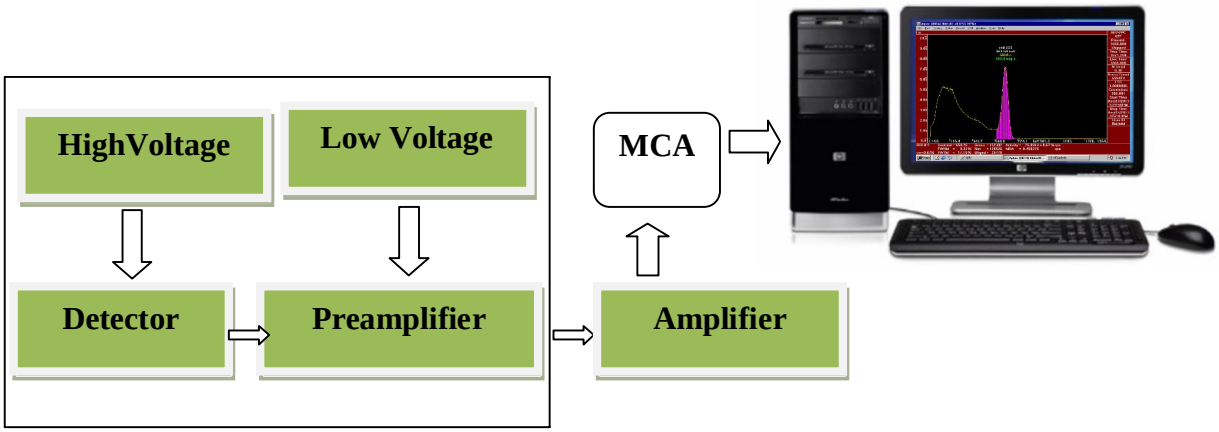


Fig.2.1 Block diagram of Scintillator based gamma ray spectrometer

Table 2.1 Gamma emission characteristics of different radionuclides used for the efficiency calibration of in-vivo monitors

Radionuclide	Energy(keV)	Abundance (%)
^{203}Hg	279.00	81.5
^{131}I	364.50	81.7
^{133}Ba	356.00	62.1
^{137}Cs	661.62	85.0
^{54}Mn	834.80	100
^{60}Co	1173.21	99.8
	1332.53	99.8
^{22}Na	1274.00	99.9
^{239}Pu	17.00 (average energy) *	4.4
^{241}Am	59.54	36.0

*Note: U Lx- rays

The detector should also be thick enough to stop the energetic gamma rays and also the secondary characteristic X-rays and auger electrons as well as large enough to cover the subject. Since the radioactivity level which needs to be detected is marginally above background, the detectors should be adequately shielded preferably with graded lining so that interference from the background and its scattered radiation are minimized. This would enable detection of LEPs especially those from actinides. A wide variety of detectors are available for in-vivo monitoring. Among them NaI(Tl) and HPGe detectors are the most

commonly used detectors. The relatively high probability of gamma-ray interaction in the NaI crystal and its excellent spectrometric properties make it suitable for in-vivo monitoring. The excellent resolution of HPGe detectors and the fact that they can be stored at room temperature while not in operation make these detectors an attractive alternative for in-vivo monitoring.

2.2 Whole body counting facility

Wholebody counting facility at IGCAR is the nodal facility for monitoring possible internal exposures of occupational workers. A variety of in-vivo monitoring systems like Shadow

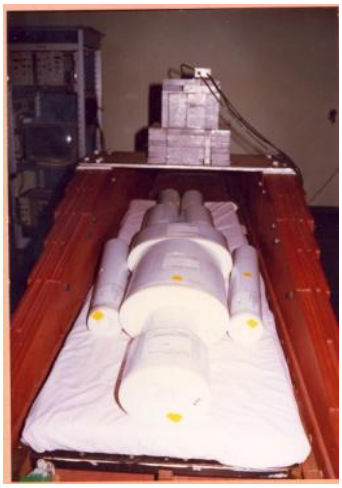


Fig 2.2 SSC with BOMAB phantom

Fig.2.3 SC counter with a) Masonite phantom and b) subject

Fig.2.4 Thyroid Monitor with Thyroid phantom

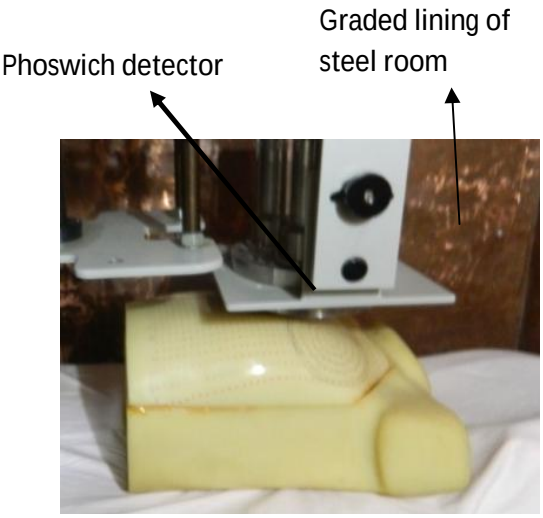


Fig.2.5 Phoswich detector with LLNL phantom (lung counting geometry)

Shield Counter (SSC) (Fig.2.2), Shielded Chair counting system (SC) (Fig.2.3), thyroid monitor (Fig.2.4) and Phoswich detector (Fig.2.5) are in operation for the estimation of fission/activation products and actinides. All these monitors are scintillation based gamma-ray spectrometers. While SC and SSC are used to quantify the gamma emitting radionuclides distributed throughout the body (wholebody monitors), thyroid and the Phoswich detectors are used to quantify the radionuclides deposited in specific organs. Thyroid monitor is used to quantify ^{131}I present in the subject's thyroid. Phoswich detector is used for the detection of actinides like plutonium, americium in different organs like lungs, liver, skull etc., whose measurement is a challenge. To achieve lower detection limits with minimum associated errors, Phoswich detector is housed in a shielded steel room and is coupled with PSD electronics. Table 2.2 summarizes the main features of all these counting systems.

2.2.1 Shadow shield counter (SSC)

SSC uses a NaI(Tl) detector of 10.15 cm diameter and 7.6 cm thickness. The subject is counted in scanning geometry. The scanning speed is 6 cm/min. Fig.2.2 shows the SSC along with the IAEA BOMAB phantom. The bed is at a distance of 27 cm from the detector. Shielding is provided in such a way that the weight of the shielding does not exceed 4 - 5 tons and at the same time no direct radiation from the surroundings can reach the detector.

2.2.2 Shielded chair counting system (SC)

SC uses a NaI(Tl) detector of 20.3 cm diameter and 10.15 cm thickness. Fig.2.3 shows the SC along with Masonite cut sheet phantom. The detector is tilted by 20° with respect to the leaning portion of the vertical axis of the monitoring system and is at a height of 58 cm from the sitting portion .The subject sits in a shielded chair. The sitting portion of the chair is 69 cm in width and 51 cm in length. The distance between the back rest of the chair and the detector is 51 cm in the non-tilted position. The chair is made up of stainless steel shell filled with lead shots. Wall thickness of the shell is 6 mm.

Table 2.2 Main features of in-vivo monitoring systems

Counting system	Detector/ window	Dimensions of the detector	Shield		Counting geometry	Resolution	Application
			Material	Thickness (cm)			
Shielded chair	NaI(Tl)/SS	20.3cm diameter X 10.15cm thick, window - 0.05cm	Lead shots for chair and block for detector	Chair:10 Detector:8	Sitting	7% at 662 keV	Estimate the intake of fission products
Shadow shield counter	NaI(Tl)/SS	10.15cm diameter X 7.6cm thick, window- 0.05cm	lead	Bed:10 Detector:10	Scanning mode	8% at 662 keV	Estimate the intake of fission products
Thyroid monitor	NaI(Tl)/SS	4.5 cm diameter and 5 cm thick NaI(Tl), window- 0.05cm	Flat field lead collimator	Length: 20 Width: 1.5	Sitting mode	15% at 364 keV	Estimate the intake of ^{131}I
Phoswich detector	NaI(Tl) coupled with CsI(Tl)/Be	NaI(Tl): 20.3 cm diameter and 0.3cm thick CsI(Tl): 20.3 cm diameter and 5cm thick Window-0.05 cm	Pre war steel room with graded lining	Steel: 20 Lead: 0.3 Cadmium:0.2 Copper : 0.1	Static supine geometry	NaI-13% at 60keV CsI- 9.3% at 662 keV	Estimate the intake of actinides
Wound monitor	NaI(Tl)/Be	5cm diameter and 0.3 cm thick, Window 0.07 cm	Pre war steel room with graded lining	Steel: 20 Lead: 0.3 Cadmium: 0.2 Copper : 0.1	Static supine geometry	13% at 60 keV	Estimate the intake of bone seekers like ^{210}Pb, ^{152}Eu, ^{241}Am etc.

The thickness of the lead shield is 10cm and has an approximate density of 7.0 g/cc. The whole chair is tilted by 15° with respect to the floor for the comfort of the subject. The 20° tilt of the detector is to make it parallel to the subject.

2.2.3 Phoswich detector

Phoswich detector is a sandwich of NaI(Tl) crystal (20.3 cm diameter, 0.3 cm thick) with a decay time of 230 ns and CsI(Tl) crystal (20.3 cm diameter, 5 cm thick) with a decay time of 1100 ns. It has an ultra-low background 0.5 mm beryllium entrance window.The outer casing of the detector is stainless steel. The Phoswich system provides an analysis range from 10 to 120 keV (LEPs) for direct measurements of actinides deposited in the body and 300 to 3000 keV for detecting Fission and activation products (HEPs). The detector is housed in a specially designed graded steel enclosure (2 m x 2m x 1.9 m).This enclosure is provided with graded lining which further provides a background reduction of about 93.4% in the 17 keV region and 98 % for energies above 40 keV (Fig.2.6).The detector is mounted on a

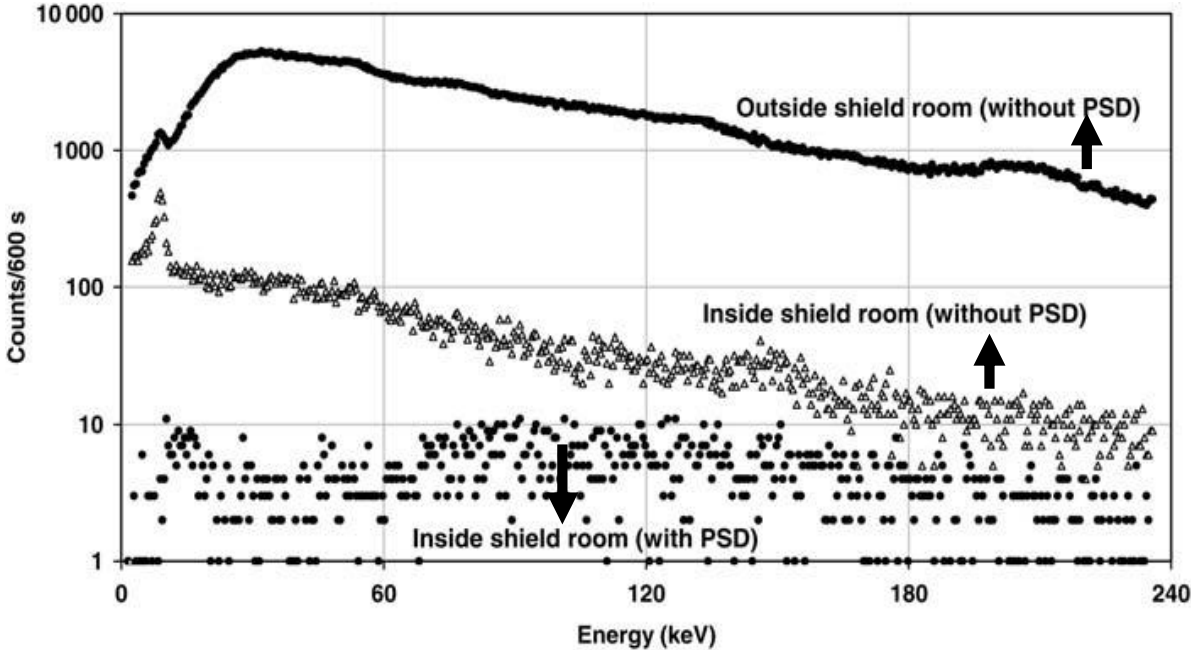


Fig.2.6 Background spectrum a) outside the steel room b) inside the steel room w/o PSD c) inside steel room with PSD

sliding carriage assembly, which allows the detector to be positioned at any measuring position above the subject being counted. In this study the detector is positioned above the lungs, liver and skull.

The PSD electronics (Fig.2.7), which utilizes the difference in the decay time characteristics[111,112,113] of the two crystals, is incorporated to discriminate the interactions of LEPs and HEPs for efficient background reduction.

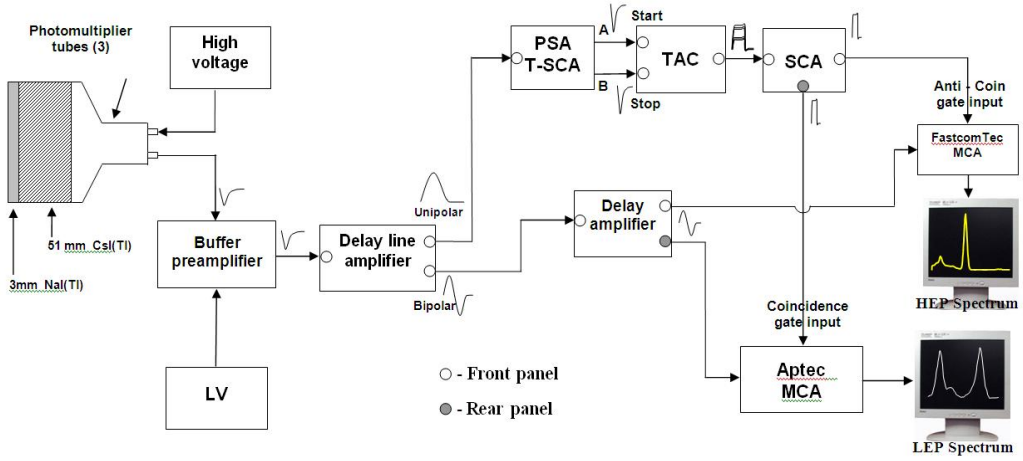


Fig.2.7 PSD electronics for Phoswich detector for simultaneous recording of LEPs and HEPs

To achieve maximum background reduction with minimum efficiency loss, PSD parameters are optimised. The optimised parameters are B-fraction in Timing Single Channel Analyzer (TSCA) to get best Figure Of Merit (FOM) and the Upper Level Discriminator (ULD)/Lower Level Discriminator (LLD) settings in Single Channel Analyzer (SCA) for maximum background reduction with minimum signal loss especially in the low energy regions of interest. B-fractions above 0.6 gave an excellent FOM [111]. B-fraction of 0.7 is fixed for routine operation. The typical timing spectrum for the ^{137}Cs source obtained with optimised parameter is shown in Fig.2.8.The settings with LLD at 1.0 V and ULD at 1.6 V provided maximum background reduction (94 %) with minimum signal loss (2 %) in the 60 keV regions. These optimised settings of PSD gave an effective discrimination of LEP

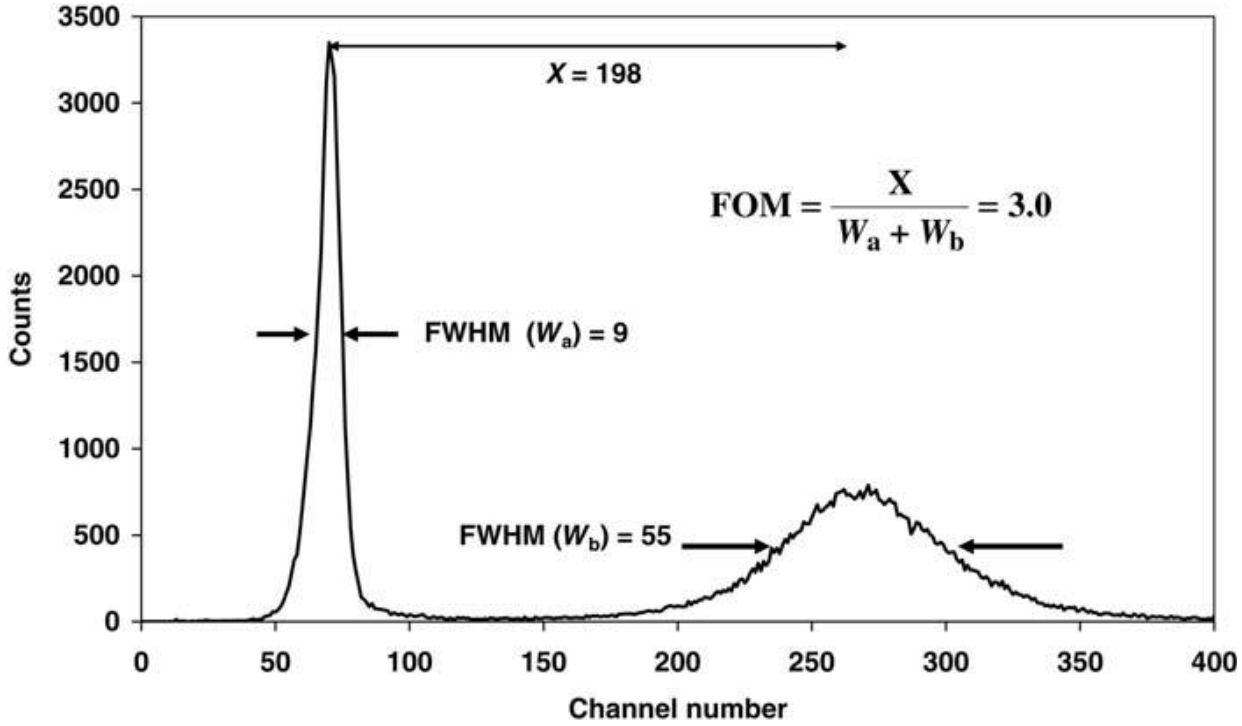


Fig. 2.8 Timing spectrum of ^{137}Cs

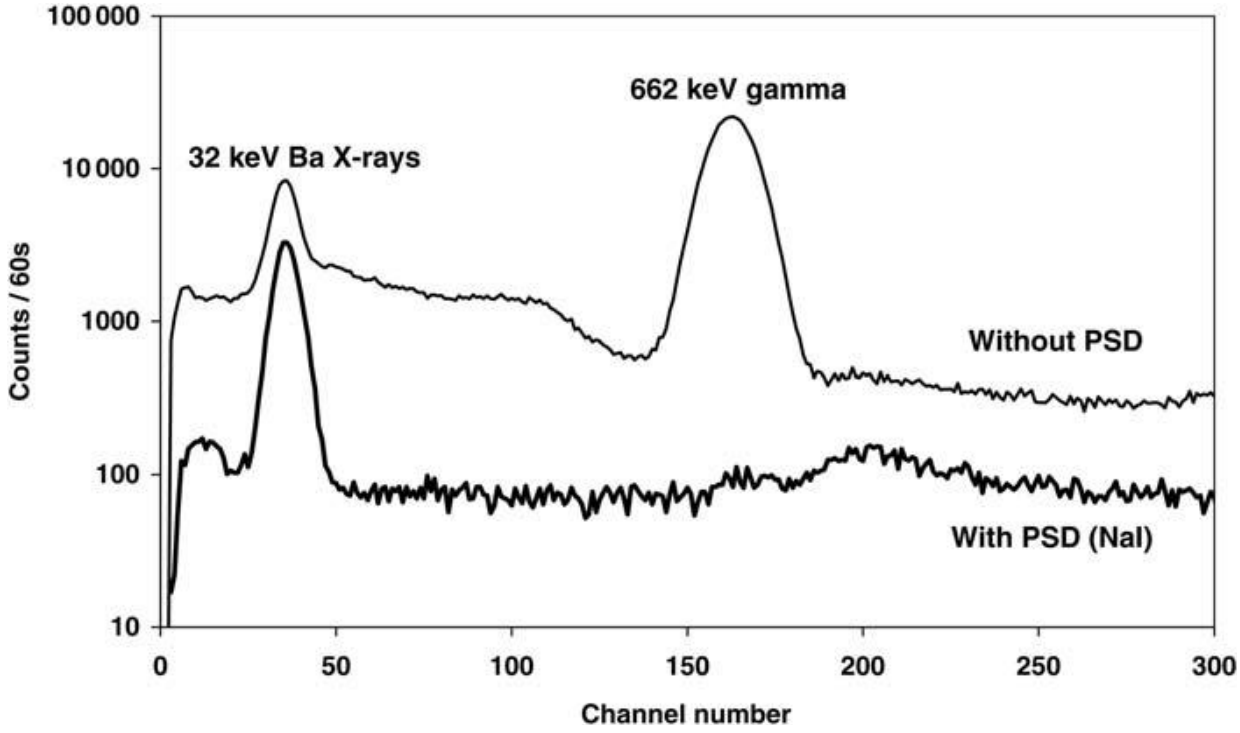


Fig.2.9 Effective discrimination of HEP using PSD

(32 keV) and HEP (662 keV) of ^{137}Cs as shown in Fig.2.9. The inclusion of PSD reduced the background counts from 9.5 to 0.28 CPS in the 17 keV region and from 5.8 to 0.3 CPS in the 60 keV region as shown in Fig.2.6 without affecting any of the spectral parameters like peak position, peak shape and Full Width at Half Maximum (FWHM). This reduction in background counts improved the MDA values by a factor of 2

2.3 Calibration of in-vivo monitoring systems

Calibration of in-vivo monitoring systems is an essential pre-requisite to identify and quantify radionuclides present inside the body. Any uncertainty in the calibration affects the accuracy of estimated internal exposure.

Counting efficiency or the calibration factor, the fundamental quantity characterizing an in-vivo monitoring system, is defined as the ratio between the net counts in the full energy peak and the number of gamma photons of that particular energy emitted from the source. Counting efficiency($\mathcal{E}$) depends on the energy of the emitted photons, the source distribution, detector size and counting geometry, photon interacting materials between the source and the detector. It is given by the following equation:

$$\mathcal{E}\left(\frac{Counts}{Photon}\right) = \frac{N_{sample} - N_{bkg}}{A \times Y \times T} \qquad 2.1$$

Where $N_{sample}$and $N_{bkg}$are the number of counts in the full energy peak for the sample and background respectively; A is the activity (Bq); Y is the abundance of the X or gamma photons emission (photon/nuclear disintegration) and T is the counting time (s). The counting efficiency is obtained from the full energy peak. The calibration factors are estimated for each individual monitoring systems for various energies using a variety of phantoms like Masonite cut sheet phantom, BOMAB phantom, LLNL phantom etc.

2.4 Phantoms

Different types of phantoms are required for the calibration of various in-vivo monitoring systems. When high energy photon emitters are monitored the phantoms need not be anthropomorphic but should be anthropometric. In case of monitoring of low energy photon emitters the phantom needs to be anthropomorphic in addition to anthropometric. In both the cases there should be provision to distribute the activity either in specific organ or throughout the phantom. Considering the above mentioned requirements, different types of phantoms have been developed and are being used for the calibration of in-vivo monitors. Table 2.3 gives the important characteristic of the phantoms used in the present study.

2.4.1 Masonite cut sheet phantom

Masonite cut sheet phantom is an in-house built phantom consisting of seven segments [114] of hardboard sheets whose dimensions are given in Table 2.4. The phantom is 156 cm in height and weighs 46 kg. Each segment is constructed with individual, rectangular sheets of 6 mm thickness. The density of each block is 0.9g/cc. Some of the sheets are provided with 5 holes of 2.5 cm diameter for the distribution of sources. The composition of the Masonite sheet (wood) was estimated using CHN (Carbon, Hydrogen, and Nitrogen) analyzer. Analysis indicated that this sheet contains Carbon,Hydrogen and Nitrogen in 47. , 2.5 and 0.2 weight% respectively. The balance 50.3% was taken as oxygen. Fig 2.2 shows the SC with the Masonite cut sheet phantom.

Table 2.3 Phantom details

Phantom	Material used	Shape of individual parts	Source distribution	Application
Masonite cut sheet	Masonite wood	Rectangular sheets	Disc source distributed at mid thickness of each block	Calibration of SC and SSC
BOMAB	PVC containers : water as filling material	Cylinders	Uniform / along the axis	Indian representative of international calibration tool for SC and SSC
Thyroid phantom	Adiprene for neck and acrylic for thyroid	Realistic shape	Uniform in the thyroid	Calibration of thyroid monitor
LLNL/JAERIphantom	Polyurethane mixed with $CaCO_3$	Realistic shape has chest overlays with different thicknesses and compositions	Uniform in the lungs & liver	Calibration of Phoswichdetector
Knee phantom	Polyurethane mixed with $CaCO_3$	Realistic	Uniform in different knee bones	Calibration of wound monitor

Table 2.4 Dimensions of Masonite cut sheet phantom

Segment	No of sheets	Length(cm)	Breadth(cm)
A	18	20	24
B	20	24	30
C	20	24	30
D	18	24	30
E	16	24	30
F	16	20	24
G	18	20	24

2.4.2 BOMAB phantom

Indian reference Bottle Manikin Absorption**(**BOMAB) phantom [115]is 168 cm tall and weighs68 kg.International Atomic Energy Agency(IAEA) phantom is 184 cm tall and weighs 105 kg [116]. The dimensions of the parts are provided in Table 2.5. The walls of each part of the phantom are made up of Poly Vinyl Chloride (PVC)of density 1.3 g /cc and thickness 0.3 cm. Fig.2.3 shows the SSC with the IAEABOMAB phantom.

Table 2.5 Dimensions of the BOMAB phantoms

S.No.	Part	Major axis (cm)		Minor axis (cm)		Height (cm)		Quantity
		Indian	IAEA	Indian	IAEA	Indian	IAEA	
1	Head	18.4	20.5	14.0	15.5	19.4	21.5	1
2	Thorax	29.4	36.0	19.8	27.5	41.1	45.0	1
3	Pelvis	35.2	40.0	19.8	30.0	19.9	22.0	1
4	Neck	14.0	15.0	13.0	15.0	9.4	10.4	1
5	Thigh*	15.4	16.0	14.2	16.0	39.1	43.5	2
6	Legs	11.6	13.5	11.6	13.5	39.2	44.0	2
7	Hands	9.2	10.5	9.2	10.5	57.2	72	2

* Note: represented as frustum of cone in Indian phantom whose largest and smallest diameter are given

2.4.3 Thyroid phantom

Thyroid phantom comprises of a head, neck and shoulder region, has a snap in thyroid shell and cover plate. Artificial neck and skull vertebrae are embedded within the phantom. A solid thyroid is also provided for the background measurements. Fig.2.4 shows the thyroid phantom along with the thyroid monitor.

2.4.4 Lawrence Livermore National Laboratory phantom

Lawrence Livermore National Laboratory phantomcontains a Torso plate (TP) and three sets of overlay plates with 87 % fat and 13 % muscle (A), 50 % fat and 50% muscle (B) and 100 % muscle (C). Each set contains four overlay plates with varying mean

thicknesses of chest wall (2.2 – 4.2 cm) when combined with the TP (Fig.2.10). The mean core chest wall thickness of the torso plate is 1.6 cm. For the calibration purpose the phantom contains ^{241}Am and Natural Thorium lung sets with uniform distribution, one hole matrix lung set with Natural Uranium and an ^{241}Amloaded liver with uniform distribution.

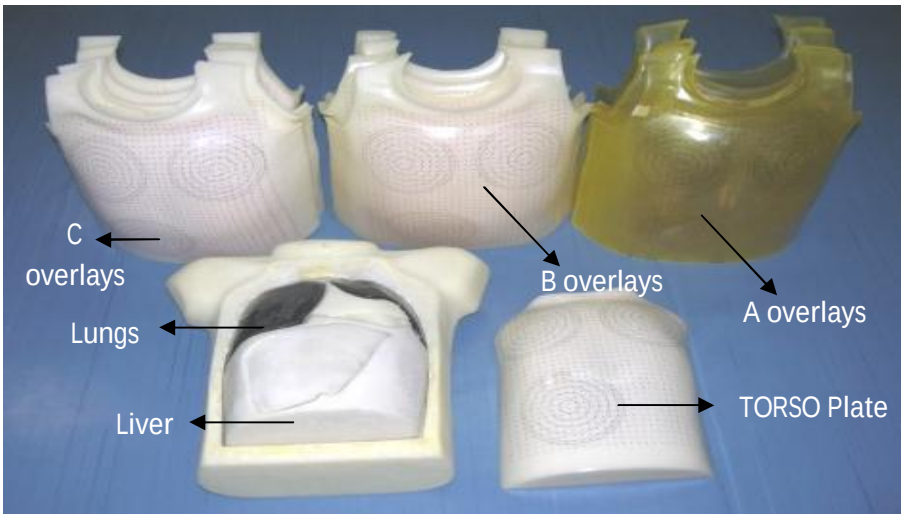


Fig.2.10 LLNL phantom with overlays

Muscle equivalent chest wall thickness (MEQ-CWT) and Adipose Mass Fraction: As the phantom consists of chest plates of different composition, one requires a family of efficiency curves. Data plotted for the counting efficiency as a function of MEQ-CWT transforms the family of curves to a single curve by eliminating the parameter AMF. MEQ-CWTat lungs for our counting geometry was calculated for all the overlay plates using the measured physical thickness at various points under the detector [117, 118, 119]. From these physical thicknesses the effective thicknesses, which takes the exponential attenuation law of gamma photons into account, were calculated using the formula

$$CWT_{EFF} = -\frac{1}{\mu_L} \ln \left[\sum_{i=1}^{N} \frac{e^{-\mu_L X_i}}{N}\right] \qquad 2.2$$

Where , X_i is the physical thickness measurement(cm), μ_L is the linear attenuation coefficient for the materials in cm^{-1}and N is the number of sampling points on the torso or overlay plate in the area being measured.

The adipose mass fraction (A) provided by the manufacturer are for individual overlay plates. When the overlay plates from series A or B are added to the torso plate, the AMF gets altered. The formula used to estimate the AMF of the LLNL phantom is

$$A = \frac{EF_{OVP} \times AC \times \rho_{ovp} / \rho_T}{EF_T} \qquad 2.3$$

Where, EF_{ovp} is the effective thickness of the overlay plate, EF_T the effective thickness of the torso plate, AC the adipose content of the overlay plate (fraction), ρ_{ovp} the density of the overlay plate (g/cc) and ρ_T the density of the torso plate (g/cc).The density and the linear attenuation coefficients for muscle and adipose are given in Table 2.6 [120].

Table 2.6 Density and linear attenuation coefficient for muscle and adipose for 17 keV and 59.54 keV

Composition	Density (g/cc)	μ (cm^{-1})	
		17 keV	59.54 keV
Adipose	0.95	0.696	0.188
Muscle	1.05	1.157	0.216

The MEQ-CWT [117] of the phantom is then calculated using the formula

$$MEQ\_CWT(cm) = \frac{[CWT(cm) \times (A \times \mu_{adp} + (1-A) \times \mu_{msc})]}{\mu_{msc}} \qquad 2.4$$

Where, CWT is the chest wall thickness (cm), A is the adipose mass fraction, μ_{adp}(cm^{-1}) the linear attenuation coefficient at a given energy for fat and μ_{mus} the linear attenuation coefficient at a given energy for muscle [119]. Table 2.7 gives the MEQ-CWT of different overlay plates in the lung region. Equation 2.4 shows that the MEQ-CWT changes as the photon energy increases. This is because the attenuation coefficient varies with energy.

Table 2.7 MEQ-CWT of different overlays of LLNL phantom in lung region

LLNL configuration	Chest wall thickness (cm)	AMF	MEQ-CWT (cm)
Torso cover (100% Muscle) +	1.631	0.0000	1.631
Plate A1 (87% Fat 13 % Muscle)	2.281	0.224	2.215
Plate A2 (87% Fat 13 % Muscle)	2.686	0.310	2.578
Plate A3 (87% Fat 13 % Muscle)	3.355	0.405	3.192
Plate A4 (87% Fat 13 % Muscle)	4.172	0.480	3.912
Plate B1 (50% Fat 50 % Muscle)	2.290	0.138	2.249
Plate B2 (50% Fat 50 % Muscle)	2.686	0.188	2.620
Plate B3 (50% Fat 50 % Muscle)	3.354	0.245	3.248
Plate B4 (50% Fat 50 % Muscle)	4.167	0.290	4.011
Plate C1 (100 % Muscle)	2.290	0.0000	2.290
Plate C2 (100 % Muscle)	2.693	0.0000	2.693
Plate C3 (100 % Muscle)	3.370	0.0000	3.370
Plate C4 (100 % Muscle)	4.184	0.0000	4.184

Similarly the MEQ-CWT in the liver region was also estimated for all the overlay plates (Table 2.8).

Table 2.8 MEQ-CWT of different overlays of LLNL phantom in liver region

LLNL configuration	Chest wall thickness (cm)	AMF	MEQ-CWT (cm)
Torso cover (100% Muscle) +	1.370	0.0000	1.340
Plate A1 (87% Fat 13 % Muscle)	2.011	0.224	1.986
Plate A2 (87% Fat 13 % Muscle)	2.342	0.310	2.303
Plate A3 (87% Fat 13 % Muscle)	3.077	0.405	3.007
Plate A4 (87% Fat 13 % Muscle)	3.904	0.480	3.799
Plate B1 (50% Fat 50 % Muscle)	2.011	0.137	1.998
Plate B2 (50% Fat 50 % Muscle)	2.347	0.187	2.326
Plate B3 (50% Fat 50 % Muscle)	3.074	0.245	3.036
Plate B4 (50% Fat 50 % Muscle)	3.910	0.290	3.853
Plate C1 (100 % Muscle)	2.011	0.0000	2.012
Plate C2 (100 % Muscle)	2.358	0.0000	2.360
Plate C3 (100 % Muscle)	3.092	0.0000	3.093
Plate C4 (100 % Muscle)	3.910	0.0000	3.911

2.4.5 Japan Atomic Research Institute phantom

The Japan Atomic Research Institute (JAERI) Torso phantom represents an Asian reference man. The phantom was manufactured using polyurethane and epoxy. It contains an artificial rib cage and four simulated organs(lungs, heart, liver and kidneys) and is terminated just above the femoral region. It has a chest wall corresponding to a thickness of 1.5 cm. This phantom was provided with one overlay plate that simulated a chest wall thickness of approximately 3.5cm and having a chest wall composition of 80% muscle and 20% fat [26] when added to the torso plate. It has a lung set loaded with ^{238}Pu.

2.4.6 Knee phantom

It is an anthropomorphic phantom containing the femur, tibia, fibula and patella bones of the leg. Activity is uniformly distributed in these bones. These bones represent 10.7% of the total skeletal mass.

2.5 Calibration Procedure

Energy calibration of all the in-vivo monitors are carried out using standard sources with different energies. The counting time for efficiency calibration is fixed such that the error due to counting statistics associated with the full-energy peak counts is less than 3%. Each measurement is repeated 5 times and the average net counts in the full energy peak region are used to estimate the calibration factors using equation 2.1.

2.5.1. Shielded Chair counting system and Shadow Shield Counter

Energy calibration factor for both the systems are 3 keV/channel. Standard disc type radioactive sources of 2.5 cm diameter having activity in the range of 3-5 kBq are used for the efficiency calibration of both SC and SSC. The error associated with the activity is within ±5%. Masonite cut-sheet phantom with sources distributed at the mid-thickness of each

segment is used for the calibration. In the segments B, C, D and E, five sources are distributed while only one source is kept in the segment 'A'. In addition to this, one source is kept in F block also for shadow shield counter. Measurements are carried out initially with blank phantom to record the background and then separately with ^{57}Co, ^{203}Hg, ^{133}Ba, ^{137}Cs,^{54}Mn, ^{22}Na and ^{60}Co standard sources loaded to determine the calibration factors in each energy region. The calibration factors and the MDA of these systems are given in Table 2.9.

Table 2.9 Calibration details

System	Phantom used	Counting time (sec)	Radionuclides	Calibration factor (CPS/kBq)	MDA (Bq)
Shielded chair	Masonite cut sheet phantom	600	^{57}Co	2.88	420
			^{133}Ba	3.25	330
			^{137}Cs	3.01	245
			^{54}Mn	2.7	233
			^{60}Co	2.32	130
Shadow shield counter	Masonite cut sheet phantom	1665	^{57}Co	0.98	350
			^{133}Ba	1.07	235
			^{137}Cs	0.78	210
			^{54}Mn	0.62	186
			^{60}Co	0.48	120
Thyroid monitor	Neck Phantom	300	^{131}I	1.0	865
Lung monitor	LLNL phantom-lungs	2700	^{241}Am	5.2 to 14.0 [c]	4-10
	LLNL phantom-liver	2700	^{241}Am	16.4 to 31.9[c]	5-10

Note [c] Varies with the composition and the thickness of the chest wall.

The higher calibration factor observed for Shielded chair is due to its larger detector compared to Shadow shield counter.

Compton scattering inside the detector and from the surrounding medium increases the counts in the low energy regions. This increase in the counts in the lower energy regions due to unit activity of high energy photon emitter is termed as Compton scattering factor (CSF).

This factor is important for scintillator based in-vivo monitors, during measurements involving multiple radionuclides. It varies with the thickness and density of the shielding material. The CSFs in lower energy regions are estimated for all the above mentioned radionuclides by recording the counts in the lower energy regions when the phantom loaded with high energy gamma photon emitting radionuclide is counted. Background in the respective regions are subtracted and the net count rate is divided by the activity of the high energy photon emitting radionuclide to obtain the CSFs. Table 2.10 gives the CSFs in different low energy region due to various high energy photon emitters.

Table 2.10 Measured CSFs of SC using Masonite phantom

Filled Radionuclide (Energy-keV)	Contribution in other ROI(CPS/kBq)			
	^{57}Co	^{203}Hg	^{133}Ba	^{137}Cs
^{203}Hg(279)	1.06	0.00	0.00	0.00
^{137}Cs(662)	0.70	1.24	0.69	0.00
^{60}Co(1173&1332)	1.23	2.30	1.23	0.86

In standard phantoms the source is uniformly distributed. In Masonite phantom this is achieved through the distribution of multiple sources. In order to estimate the optimum source depth that resembles the uniform source distribution, measurements were repeated in shielded chair with ^{137}Cs sources at different depths and the calibration factors were estimated. The calibration factor for source kept at the top was 60% higher with respect to that of the middle and the calibration factor for source kept at the bottom was 40% lower compared to that of the middle.

2.5.2. *Thyroid monitor*

Thyroid monitor is calibrated using thyroid phantom. The thyroid shell of the phantom is filled with known activity of ^{131}I. The phantom is placed at a distance of 21 cm

from the detector. The counts obtained in the 364 keV photopeak region is used for the determination of the calibration factor. The calculated calibration factor is 1 CPS/kBq.

2.5.3. Phoswich based lung monitor

Phoswich detector is initially calibrated for LEP measurements. The energy calibration factor is 0.4 keV/channel. Point source calibration factor was obtained using ^{241}Am source of activity 52.63 Bq kept at a distance of 15 cm from the detector. The efficiencies for Np Lx-rays and 59.54 keV of ^{241}Am were estimated to be 2.76 CPS/kBq and 2.73 CPS/kBq respectively.

The Phoswich detector was calibrated using LLNL phantom with different overlays in supine geometry for the determination of actinides in lungs and liver. For lung measurement the detector centre is positioned on the midline of the phantom and one end of the detector is tangential to the supra-sternal notch. For liver measurement the detector was positioned at the height of the 7th rib on the right side of the body between the inferior end of the rib cage and infra-sternal notch. The 7th rib is approximately the liver center (Fig.2.11). The distance between the detector and the phantom was 1cm. Measurements were carried out separately with ^{241}Am tagged lung sets, Natural Uranium lung sets and ^{241}Am tagged liver.

Fig.2.11 Counting geometry for liver measurement

Calibration factors for different MEQ -CWT were estimated using 59.54 keV for ^{241}Am and 63 & 93 keV gamma photons for Natural Uranium. Table 2.9 summarizes the calibration factors along with MDA values. The lower calibration factors lung measurement compared to liver measurement is due to the interference from the ribs. The MDA value of Phoswich for ^{241}Am is lower compared to other radionuclides detected by other systems because of the efficient background reduction in 60 keV region due to the graded shield room and the PSD electronics and also due to the increase in efficiency and counting time.

In addition to these calibration factors, the contributions from lung activity to the detector placed at liver and vice versa were also estimated for all the overlays. They were in the range of 2.3 to 3.5 CPS/kBq and 5.0 to 9.5 CPS/kBq respectively. Phoswich detector was also calibrated for the HEP emitters.

The detector was positioned at the clavicles at a distance of 1 cm from the skin, with a tilt of 20˚ along the head to foot axis for the JAERI phantom measurement. The MEQ-CWT of the cover plate was estimated to be3.05 cm. The calibration factor for ^{238}Pu was converted to that of ^{239}Pu using the yield factor of 17 keV of both the radionuclides. The estimated calibration factor is 6.76 CPS/kBq.

Efficiency calibration for the energy range 356 keV to 1332 keV was carried out using point sources kept at 10 cm from the detector. The system showed an excellent efficiency correlation with energy.

2.6 Conclusion

Meticulous efforts have been taken to estimate the calibration factors (efficiency values) for all the in-vivo monitoring systems so that the internal exposure of any radionuclide deposited in any organ can be estimated with high accuracy. CSFs were also determined for the estimation of activities in case of multiple radionuclides intake. Care was taken during

each and every step to reduce both random and systematic errors. The PSD electronics of Phoswich based lung monitor was reconfigured to simultaneously record both LEPs and HEPs. The PSD parameters were optimized to have minimum background in low energy region with maximum efficiency. Calibration factors of Phoswich detector for ^{241}Am and Natural Uranium present in the lungs and ^{241}Am present in the liver for different MEQ-CWT were calculated. The contributions of the lung activity in liver measurement and vice versa were estimated.

Calibration factors for various in-vivo monitors have also been theoretically simulated and validated experimentally which are presented in Chapter 3.

Chapter-3

Theoretical simulation of in-vivo *monitors*

3.0 Introduction

A precise and well calibrated in-vivo monitor is an essential pre requisite for accurate estimation of internal dose. In in-vivo monitoring this means an optimised counting system coupled with an appropriate physical phantom and its calibration. Physical phantoms have many limitations such as they don't represent the individual being monitored, have limited shelf-life; have only fixed distribution of radionuclides etc. It is well realized that optimization of in-vivo monitoring systems including the detector size, geometry etc., are highly complex and can be best achieved through the use of numerical simulation. Traditionally, simulations have been used to study the influence of subject morphology, shield, source distribution, detector dimension including crystal/window thickness, detector geometry etc., as these are difficult to study through experimentation. It is also not possible to have calibration factors for non-conventional geometries, which may be required to monitor subjects with high level of radioactivity especially encountered during emergencies, through experimentation. A possible way to overcome these limitations of the physical phantom is through the use of mathematical models and Monte Carlo (MC) simulations. So, any in-vivo monitoring facility needs to have numerical calibration as an essential tool to supplement the experimental calibration procedures using physical phantoms.

This chapter discusses the modeling of different in-vivo monitors with appropriate phantoms for the estimation of calibration factors. In addition, the modeling has also been used to estimate the CSFs, to study the variation in calibration factor with (i) source distribution, (ii) subject morphology and (iii) detector placement and to quantify the error in

the partial body activity estimation through the use of efficiencies corresponding to wholebody geometry. Alternate detector position for lung monitoring of female subjects is also discussed here.

3.1 General feature of the simulations

The organ contamination, photon transport and detection simulation is made through 4B version of the MCNP code. Adequate care was taken in modeling and testing each and every component of the problem geometry in simulation. The doping materials in the detector were not considered in the detector model, as they are very low in concentration and earlier studies have shown that their inclusion in the modeling affects the result by only about 0.2% [121].The SDEF option was used with mode P to specify the energy and positional distribution of the primary particles and the direction of emission. Pulse height 'F8' tally which gives the distribution of the energy deposition of photon inside the detector [37]has been used to simulate the spectrum and wherefrom the detector calibration factor was estimated. This tally has the following features:

- The energy bins in the simulated gamma spectrum correspond to the energy deposited in the detector cell summed over all the tracks of a history.
- No integral is evaluated, but the deposited energy in a cell is calculated based on the detailed microscopic radiation tracking.
- If the photon does not undergo interactions in a specified cell, no energy is deposited and the photon does not contribute to the pulse height spectrum.

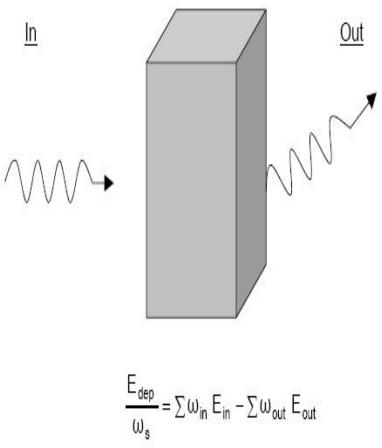


Fig.3.1 - Energy deposition (E_{dep}) in a cell

The energy deposition (E_{dep}) calculated by the "PULSE HEIGHT" tally in a "cell" is cpresented in Fig.3.1. When a photon (or its descendant) enters the cell, the cell is credited with energy (E_{in}) times the weight (ω) of the incoming photon. If the photon (or its descendant) leaves the cell, the product of weight (ω) and energy (E_{out}) of the outgoing photon is subtracted from the cell's energy. Therefore, for each history the total energy is the weighted difference between the incoming and outgoing energies summed over all tracks belonging to that particular history. The energy bin corresponding to the total energy deposited is incremented by the initial weight of the source photon. Hence for each history, only one count is added to the spectrum. Simulated spectra had to be compared with the measured one, thus Gaussian energetic broadening (GEB), proper energetic range and binning is needed.

Physical radiation detectors have a finite resolution. The measured spectra for a mono-energetic photon source will appear as a broadened peak at the source energy due to the statistical nature of the detection and data acquisition process. The tallied energy in pulse height tally is broadened by sampling from a Gaussian distribution. The desired FWHM is specified as in equation 2.1 [122].

$$FWHM = a + b\sqrt{E + c \times E^2} \qquad 2.1$$

Where a,$b$and c are the GEB parameters and E is the photopeak Energy. The MCNP GEB parameters were used along with the 'PULSE HEIGHT' tally to obtain realistic spectra that are similar to those obtained experimentally. The necessary GEB parameters: a,b and $c$were determined experimentally by measuring the FWHM at the photopeaks of known mono-energetic point sources.

Simulation runs were generally terminated when the tallies achieved a relative error of < 1% in each energy bin in the peak area of interest. The number of histories needed to

achieve this ranged from 32000 to 21e8 depending on the energy and the type of phantom simulated. Tally fluctuation charts were checked to ensure that all tallies comply with the ten statistical tests imposed by MCNP. These statistical checks will only improve the precision and not the accuracy of the results. The accuracy of the estimate is dependent upon the appropriateness of the stochastic model to represent the true physical process. Hence, this type of code should not be used in isolation. Validation with physical measurements is essential. Once the model has been validated or normalized at some point during the analysis, it can then be extended for any detector geometry, source distribution and energy which are difficult to study through physical experiments. So each detector model simulated in this work was validated using the relevant measurement values. The details of the validation are discussed in Chapter 4 while this chapter discusses the modeling aspects.

3.2 Need for simulating shielded chair counting system

The shielded chair counting system is calibrated experimentally using Masonite phantom. Though the detector can be used for measurement of gamma photons upto 3000 keV, the experimental calibration is done only upto 1500keV.Additional data on the calibration factors above 1500 keV can be obtained through simulation. In the Masonite cut sheet phantom the uniform source distribution is achieved through the use of multiple point sources, which has to be validated. The possible method of validation is the numerical simulation. The Masonite cut sheet phantom is an in-house built one which is easier to fabricate from commonly available raw material with less cost and standard disc sources can be used for the calibration. This phantom has to be compared with the internationally accepted calibration tool (BOMAB phantom) for wholebody counters. For this the physical BOMAB phantom with uniform distribution is needed so that a comparison can be made through measurements. In the absence of which, numerical simulation can be an alternative. When subjects come for counting immediately after inhalation or accidental ingestion, the

radionuclide will not be uniformly distributed in the body but will be localized either in the thorax region or the abdominal region depending on the mode of intake. In order to accurately quantify such contamination, calibration factors for partial body distribution should only be used. These partial body calibration factors are not available and needs to be established. To address this problem, multiple phantoms are essential which may not be practically possible. Numerical simulation could be the solution. Since the calibration factors and the CSFs of wholebody counting systems are also sensitive to the subject morphology like height and weight, size dependent correction factor for both the calibration factor and the CSFs are required. Numerical simulation can be applied to estimate the size correction factors.

3.2.1 Modeling of Shielded chair counting system

Prior to applying the counting system model to the above mentioned problems, it has to be validated using experimental results. The shielded chair counting system along with detector and their shield has been modeled. The GEB factors (*a=-0.0084, b=0.06526, c=0.03087*) were determined from the measured FWHM and the fitted curve is shown in Fig.3.2

3.2.2 Numerical reconstruction of Masonite cut sheet phantom

Masonite cut sheet phantom was modeled in the chair. XZ cross-section of the counting system and the phantom is shown in Fig.3.3. Since estimation of CSFs is one of the main objectives in this work, matching in lower energy regions of the spectrum is also important. Therefore a detailed and careful modeling of the shield and the other supporting material has

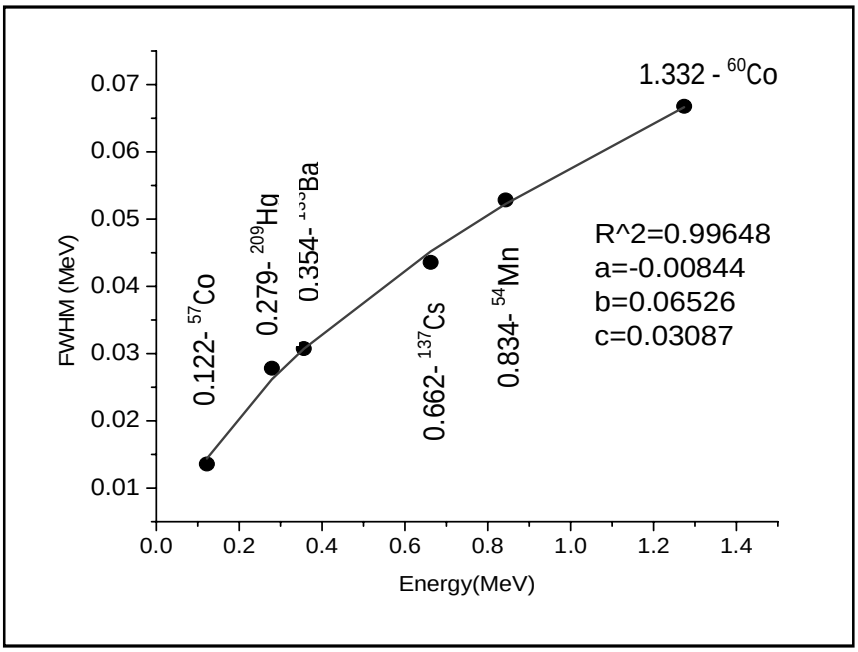


Fig.3.2 Variation of FWHM for SC

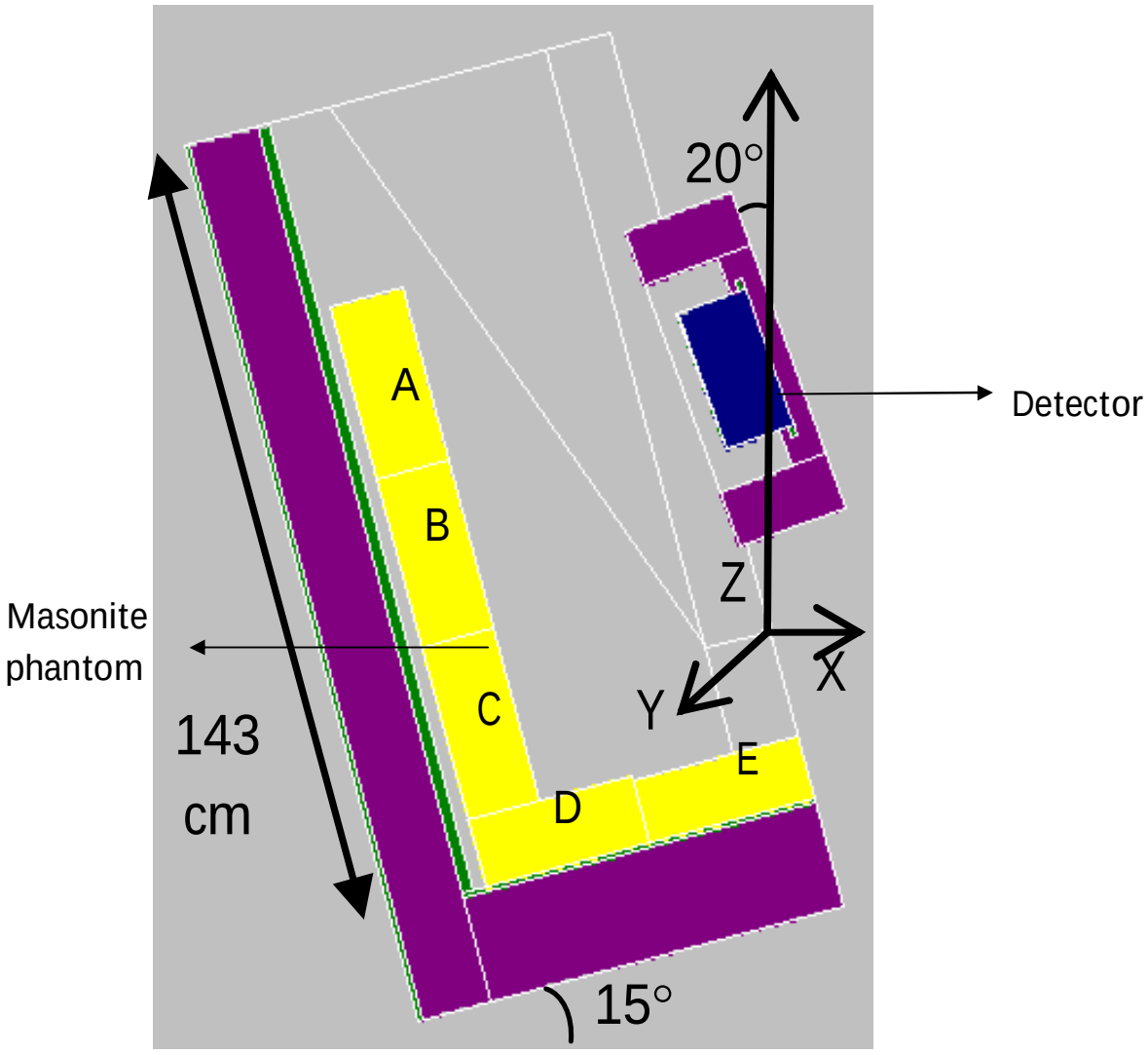


Fig.3.3Cross-sectional view of the modeled SC with Masonite phantom

been undertaken. This is crucial since CSFs is sensitive to the influence of the surrounding material. CSFs are necessary to accurately quantify individual radionuclides while measuring a subject with multiple radionuclides, especially for NaI(Tl) detector based systems. Each block of the phantom is modeled on the shielded chair as per the experimental setup .The source distribution is similar to the experiment.

Validation of the system modeling: Spectrum was simulated for662 keV gamma photons. Comparison of the simulated spectrum with the measured spectra indicated good agreement with respect to the spectral shape and the counts in all the regions. This validated the modeling of the counting system. After validation of the system modeling, the spectra were simulated for other gamma energies such as 122 keV, 279 keV, 356 keV, 834 keV and 1332 keV gamma photons corresponding to the radionuclides ^{57}Co, ^{203}Hg, ^{133}Ba, ^{54}Mn and ^{60}Co. Simulations were also carried out for additional energies of 1750 keV, 2000 keV and 2500 keV for smooth extrapolation of the efficiency curve upto 3000 keV. Calibration factorsare estimated from the counts in the full energy peak of the simulated spectrum. From the simulated spectrum of the high energy gamma photons the CSFs for various low energy regions were determined. In order to study the influence of various components of the shielded chair counting system, simulations using 662 keV gamma photons were carried out by first adding the SS shell of the shield and changing its thickness and then support plate of the detector to the model. The 40 - 400 keV energy region was taken as the scattering region and the counts in this region was taken for analysis.

3.2.3 Simulation to estimate the variation in calibration factor due to spatial distribution-

Masonite cut sheet phantom

Standard phantoms have uniform distribution of radioactivity which is achieved by mixing known quantity of radioactivity in water or resin and filling the hollow sections of the phantom. Use of multiple sealed point sources are resorted to for simulating uniform

distribution, considering the risk of leakage of radioactivity and the post calibration contamination of the phantom, when using liquid /resin sources for simulating uniform distribution. In Masonite cut sheet phantom uniform wholebody distribution can be achieved by distributing multiple sources at a particular depth. However, this needs to be validated either through measurement or through MC simulation. Hence, the calibration factors for uniform source distribution inside the Masonite phantom were simulated and compared with that of multiple source distribution. The uncertainty in calibration factor due to source distribution has to be quantified. The size of the detector used for in-vivo monitoring are optimised in such a way that the area of coverage would be more than 90%, minimizing the error due to non-uniform distribution at a particular depth. But the error due to the variation in the source depth is likely to be significant. In order to estimate the optimum source depth which resembles the uniform distribution, simulations were carried out by varying the depth of ^{137}Cs sources from top surface to the bottom surface of the phantom. The variation in the calibration factor arising due to the distribution of radioactivity at different depths was also studied.

3.2.4 Modeling of BOMAB phantom along with SC

BOMAB phantoms are the internationally accepted calibration tool for wholebody monitors. A seven segment, cylindrical hollow block BOMAB phantom to represent an Indian Adult [123] was developed by Bhabha Atomic Research Centre for the calibration of the in-vivo monitoring systems. In order to compare the calibration factors and the CSFs of the in-house built Masonite cut sheet phantom with that of the Indian adult BOMAB phantom, simulations were carried out with the Indian adult BOMAB phantom. The BOMAB phantom mentioned in chapter 2 was modeled in the place of Masonite phantom along with the validated shielded chair counting system in a sitting geometry as shown in Fig.3.4. The activity was distributed uniformly in each part proportional to weight.

Spectra for 279 keV, 662 keV, 1173 keV, 1332 keV, 2615 keV and 2754 keV simulating the radionuclides most commonly used for calibrating in-vivo monitors, were theoretically obtained. Calibration factors and the CSFs were estimated from the simulated spectra. The MCNP input file for the numerical simulation of the CF for SC using BOMAB phantom uniformly distribution of radionuclide emitting 2.75 MeV photon corresponding to ^{24}Na in the thorax region is given in Appendix A.1

3.2.5 Simulation to study the efficiency variation for partial body distribution of activity

Estimation of internal contamination in a particular organ, using the calibration factor obtained from whole body distribution can result in error in the activity estimation by a factor

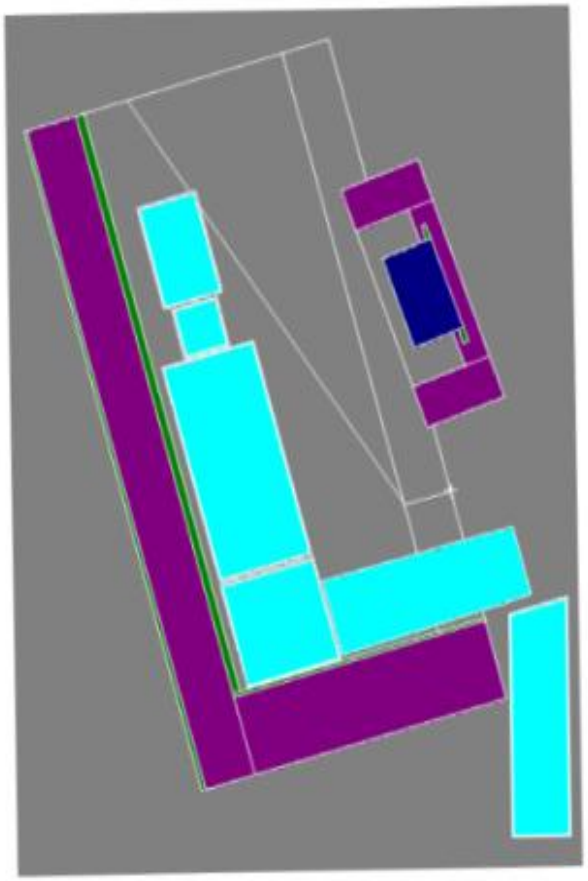


Fig. 3.4 Modeled Shielded chair system with BOMAB phantom

of two to three [21]. This error can be minimized by using calibration factors corresponding to the partial body distribution, which can be derived through numerical simulation. The calibration factors for sources distributed separately in the chest (inhalation), abdomen (ingestion) and neck region (Thyroid) were estimated for various radionuclides. The magnitude of error in the calibration factors was theoretically estimated.

During an in-vivo monitoring, there was a need to estimate the internal exposure of ^{133m}Xe through inhalation. Available wholebody calibration factors established using Masonite phantom and simulated for BOMAB phantom could not be directly applied for the two reasons (i) the difference in the source distribution between the calibration (wholebody) and measurement (thorax) (ii) since energy of ^{133m}Xe is 233 keV, deriving the calibration factor from the curve would result in large errors. Hence, radionuclide specific (^{133m}Xe, 233 keV) calibration factor was obtained through numerical simulation and activity was estimated.

3.3 Simulation of scanning mode -Shadow shield counting system

The Shadow shield counter was modeled along with Masonite cut sheet phantom to estimate the calibration factors for HEP. The GEB factors of NaI crystal (a=*-0.01983 b=0.09182 c=0.07071)* were obtained from the experimental FWHM. As MCNP cannot simulate scanning mode directly, the same was done by positioning the detector at various

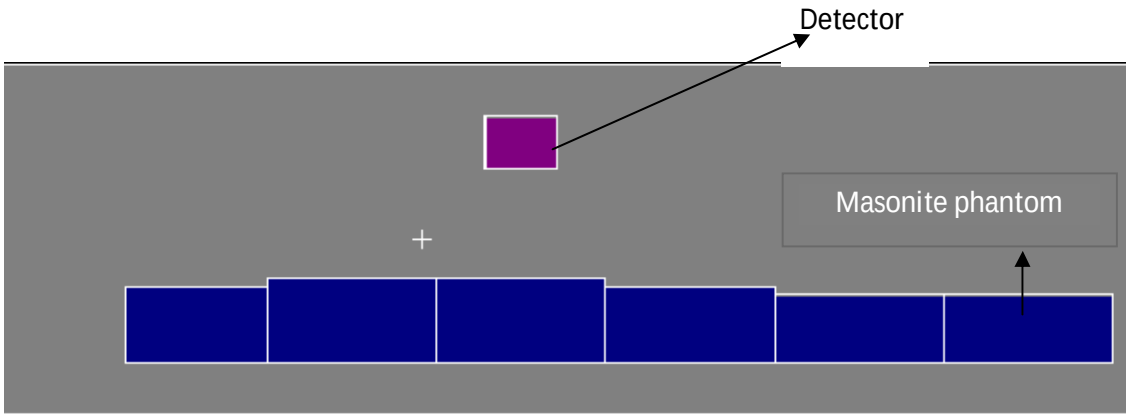


Fig. 3.5 Modeling of shadow shield counter with Masonite cut sheet phantom

locations along the height of the Masonite cut sheet phantom. Fig.3.5 shows the modeled detector along with the Masonite phantom. The gamma photons that interacted with the NaI detector were tallied at each location to obtain the calibration factor. The scanning mode calibration factor was obtained by averaging the calibration factors obtained at all locations. The number of locations was optimised in order to get a close match of the simulated calibration factor for ^{137}Cs in Masonite cut sheet phantom with the experimental one. To start with, 10 locations were used as given by Kramer et al. [67]. The deviation between the simulated and the measured calibration factor was 16%.

To reduce this deviation, the number of locations were increased to 16 i.e. detector displacement of 10 cm which is equal to the diameter of the detector. The simulated calibration factor was closer to the experimental value (deviation <3%). Thus the number of locations is optimised to 16 and the calibration factors for other radionuclides like ^{60}Co, ^{133}Ba and ^{54}Mn were also generated.

3.4 Numerical reconstruction of Phoswich detector

The Phoswich based lung monitor is calibrated using LLNL phantom. The LLNL phantom which represents the western population has a marked difference in the anatomy with that of the Indian population. Use of calibration factors obtained using LLNL phantom for estimation of actinides would result in large uncertainties. Currently, Indian standard realistic torso phantom is not available. Hence, numerical simulations were carried out to generate Indian specific calibration factors for lung monitoring. Nowadays, a large number of women are also employed in the nuclear industry and they have to be monitored. However, there is no physical realistic torso phantom to represent female subjects available with different breast sizes as the fabrication of such phantoms are difficult, time consuming and expensive [104]. Estimation of internal dose to woman due to actinides using the calibration

factors obtained from the LLNL phantom will have large errors associated with them. In order to reduce this error, theoretical estimation of the calibration factor for female subjects is an alternative. The calibration factors thus derived through simulations are detector and geometry specific; hence these factors are to be determined for individual facility. So these values were estimated numerically after validating the detector model.

The Phoswich detector located inside the graded shield room was modeled from the external casing to the inner crystal using the manufacturer's technical drawings (Fig.3.6). Unlike simulations of high energy photon emitting sources, simulation of low energy photon

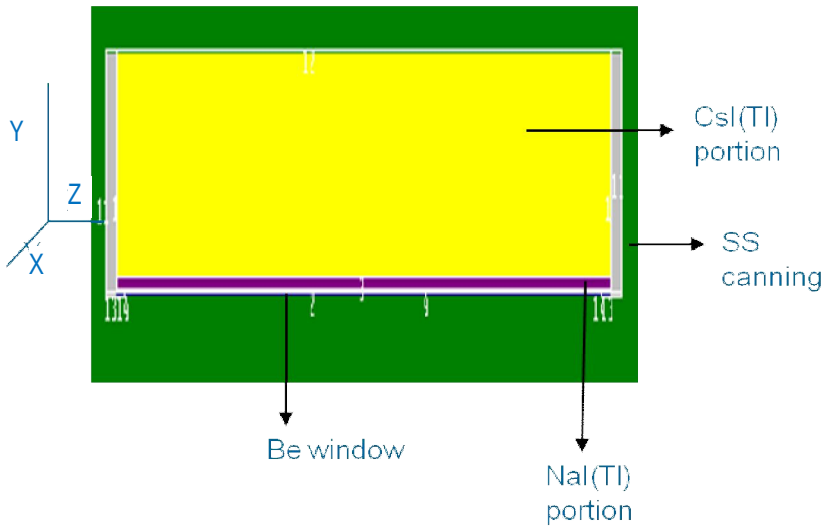


Fig.3.6 Model of Phoswich detector

emitting sources is challenging wherein even the minute deviations in the parameter of the counting system like detector dimensions, details of canning materials, entrance window and the surrounding materials (shield) would play a significant role. Hence the detector model needs to be precise. The Phoswich detector is used for both HEP and LEP measurements. So, simulations have to be done for both regions. As, the resolution of both the crystals in Phoswich detector are different, GEB factors have to be estimated separately.

3.4.1. Simulation of point source calibration factor for Low Energy gamma Photon measurement

As mentioned earlier in this chapter, in order to apply Monte Carlo methods, a proper validated model of detector system is a must. The detector modeling was validated using point source efficiency of ^{241}Am source placed at 15 cm from the detector. The validation was done for both Np Lx -rays (average energy 17 keV) and 59.54 keV gamma photons. The pulse height tally was used to estimate the pulse height distribution in NaI crystal alone. The GEB factors of NaI crystal (*a=0.00074 b=0.02456 c=6.09374*) was obtained from the experimental FWHM values of the photopeaks of LEP emitters.

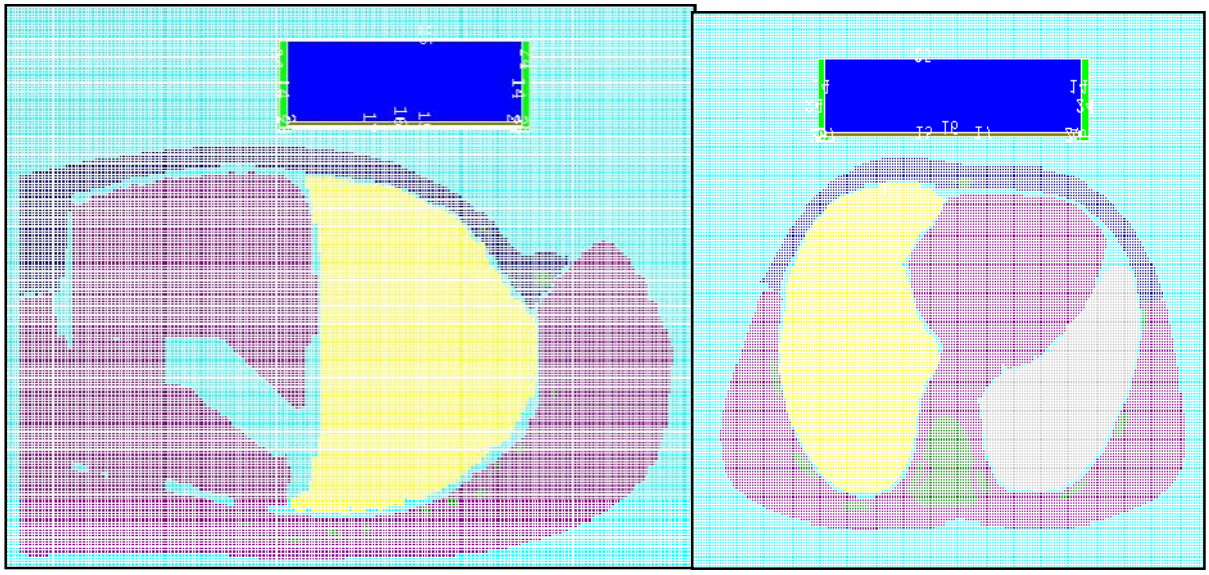
3.4.2. Numerical calibration of Phoswich detector using voxel phantoms

The phantoms used for the calibration of low energy photon detectors have to be more realistic to the human subject. This is achieved numerically by the use of voxel phantoms. Recently ICRP has recommended adult male and female reference voxel phantoms for dosimetric purposes. An attempt has been made to numerically calibrate the Phoswich lung monitor using ICRP voxel phantoms and compare the results with available LLNL phantom based measurements.

Use of ICRP voxel phantoms for simulation requires first its validation through measurements. This validation is not possible since physical phantoms of ICRP voxel phantom do not exist. The validation was done using LLNL phantom wherein both the physical as well as voxel phantoms are available. A simulation study was carried out with Phoswich along with the LLNL voxel phantom. In the simulation the detector was positioned (Fig.3.7) similar to measurement geometry.

The phantom is made of six different tissue equivalent polyurethane mixtures listed in Table 3. 1. The phantom body, chest plate, lungs and the ribs were modeled. The torso plate

was 1.6 cm thick and its composition was 100% muscle. The phantom was included in the MC input file using the repeated structure format since it proved to be more efficient in accelerating the simulations [124].The advantage of using repeated structures is that cells that appear several times in the geometry have to be defined only once thereby reducing the amount of input data and enabling efficient simulation runs.



. **Fig.3.7 Longitudinal and transverse view of detector positioned above the lungs of LLNL voxel phantom**

Table 3.1 Material composition of the LLNL Torso phantom

S.No.	Description	Elemental composition (% mass)				
		H	C	N	O	Ca
1	Bone	6.38	47.20	2.12	31.30	13.00
2	Muscle	9.03	59.40	3.30	26.60	1.70
3	Lungs	8.00	60.80	4.20	24.90	2.10
4	13% muscle, 87% adipose	9.44	61.60	3.57	25.40	0.00
5	50% muscle, 50% adipose	9.24	60.80	3.85	25.40	0.78

The repeating cells were defined as cubes and contain the information on material compositions and densities corresponding to a particular tissue. Each voxel of the phantom was filled with the universe that describes the particular tissue in that corresponding location within the phantom. Voxel phantom was defined using universes (each representing a tissue) made of different materials. Each universe has unique density and elemental composition. Table 3.2 list the cells defined in LLNL voxel phantom along with its density and tissue. Appendix A.2 gives the input giving only the slices containing the lungs.

All the simulations were performed with a homogenous distribution of radionuclide inside the lungs. Spectrum was simulated for ^{241}Am and Natural Uranium. The decay scheme of ^{241}Am is rather complex. ^{241}Am emits Np L x-rays and 59.54 keV gamma photons out of which only the gammas will reach the detector. So only 59.54 keV has been considered in this simulation. In the case of Natural Uranium, the gammas emitted by ^{234}Th the daughter product of ^{238}Uare considered. From the simulated spectrum the calibration factor was estimated and compared with the measured one. Then the calibration factor was simulated for ^{239}Pu for which the physical lung set was not available.

Modeling of ICRP phantoms: Simulation was also carried out using the ICRP-AF voxel phantom to have a comparison with the LLNL phantom. The ICRP voxel phantom is different from the modeled LLNL voxel phantom with respect to the number of organs, tissue composition, density as well as number and dimensions of voxels.

The construction details of the ICRP voxel phantoms are given in Table 3.3. The ICRP reference voxel phantoms are described by three-dimensional voxel arrays [125] where columns correspond to 'X' co-ordinates that increase from right to left, rows correspond to 'Y' co-ordinates that increases from front to back and the slices to 'Z' co-ordinate that increases from head to toes. Various organs in the body are modeled using the repeated structure feature of MCNP. The locations of various tissues in the lattice are obtained from

the downloaded supplementary file provided with ICRP 110 [88]. Appendix A.3 and A.4 list the cells defined in ICRP-AM and ICRP-AF, respectively along with tissue type and its density. Comparison of the simulated calibration factors with that obtained from LLNL phantom

Table 3.2 List of cell, densities and corresponding material used in LLNL phantom modeling

Cell	Density(g/cc)	Material
8	-----	Phantom
7	-----	Repeated structure
6	1.21e-03	Air
5	0.296	Lung equivalent plastic
4	0.296	Lung equivalent plastic
3	1.4	Bone equivalent plastic
2	1.12	Plate 100% muscle equivalent plastic Plate 50% muscle Plate 13% muscle
1	1.12	Phantom body
151	3.67	NaI crystal
152	1.8488	Be window
153	0.0012	Air inside the steel room
155	4.51	CsI crystal
156	7.86	SS
157	7.86	SS
158	8.96	Cu
159	8.65	Cd
160	11.3	Pb
161	7.86	Steel
154	0.00	Outside world

measurement requires the knowledge of the MEQ-CWT which is calculated from the chest wall thickness and the composition. The chest wall composition for ICRP-AM was derived to be 56% muscle and 44% fat from the mass of the adipose tissue and the muscle in the trunk as given in ICRP 110. The chest wall thickness of the phantom was not provided as it is specific to the area being viewed by the detector and has to be determined for the detector

position used for simulation. The chest wall thickness of ICRP-AM phantom was estimated for the IGCAR lung and liver counting geometry. The determination of the average CWT of the voxel models is based on measuring the distance between the body surface (skin) voxel and voxel of the organ surface at several locations [126,127]. Accordingly, the detector surface area was projected on the chest wall of the phantom and the thickness of chest wall in this projected area was calculated. This was done by finding the number of voxels between the skin and the pleura of the lung/surface of liver for each voxel in the projected area.

Table 3.3 Features of ICRP voxel phantoms

Property	**Male**	**Female**
Mass (kg)	73	60
Height (m)	1.76	1.63
Slice thickness (mm)	8	4.84
voxel in-plane resolution (mm)	2.137	1.775
voxel volume (mm3)	36.54	15.25
Number of columns	254	299
Number of rows	127	137
Number of slices	220	346
No of tissue voxels	1946375	3886020

The physical thickness at each point in the area was estimated by multiplying the number of voxels with the voxel dimension along 'Y' axis. For each case nearly 1500 surface voxels were selected. The effective thickness, defined in chapter 2, was calculated using the physical thickness of the chest wall underneath the detector [118] for 59.54 keV. This was done both for the lung and liver positions. The calculated effective thickness was 3.07 and 2.96 cm for lung and liver region respectively. The Muscle Equivalent Chest wall thickness (MEQ-CWT) of ICRP male phantom for lung and liver region were calculated as 2.89 cm and 2.79 cm respectively. The effective chest wall thickness of lung region for 17 keV gamma photons was estimated to be 2.67 cm and its MEQ-CWT was 2.23 cm.

The modeled voxel phantoms along with detector in lung position are shown in Fig.3.8 and Fig.3.9. The modeling for liver measurement is shown in Fig.3.10. The modeling was verified by plotting the geometry. After the geometry verification, simulations were carried out. All the simulations have been performed with the hypothesis of a homogenous distribution of the radionuclide within the organs. The uniform source distribution was achieved by defining each lung voxel as a volume source with equal probability. Approximately 75000 and 47000 source voxels were defined for the lungs and liver of the ICRP AM respectively and15 lakh source voxels were defined for the lungs of ICRP-AF.

Pulse height tally was scored in NaI crystal of the Phoswich detector. For male phantom the detection efficiencies were estimated for ^{239}Pu, ^{241}Am and Natural Uranium present in lungs and for ^{241}Am in liver. For Natural Uranium present in the lungs simulations were carried out both with and without the HEPs emitted by its daughters to study the influence of HEPs in the LEP region. These values were compared with the measured values using LLNL phantom. For ^{239}Pu comparison was made with the JAERI phantom measurement.

When ^{239}Pu is measured in the presence of ^{241}Am, there will be an increase in the counts in 17 keV region due to Compton scattering of 59.54 keV gamma photons. This factor cannot be estimated experimentally due to the non-availability of source having only 59.54 keV gamma photons.

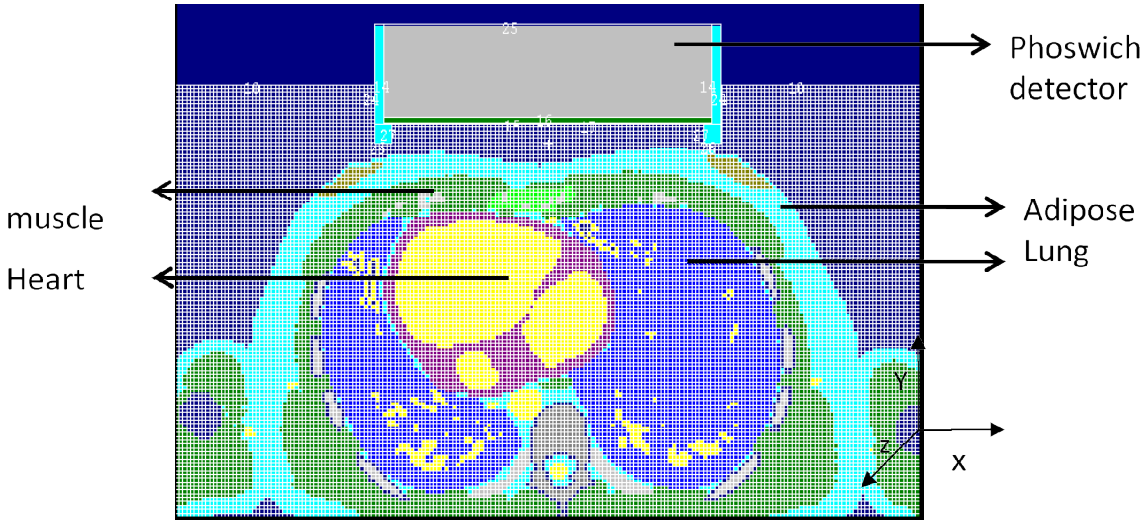


Fig.3.8 Transverse view of the ICRP male phantom with Phoswich detector

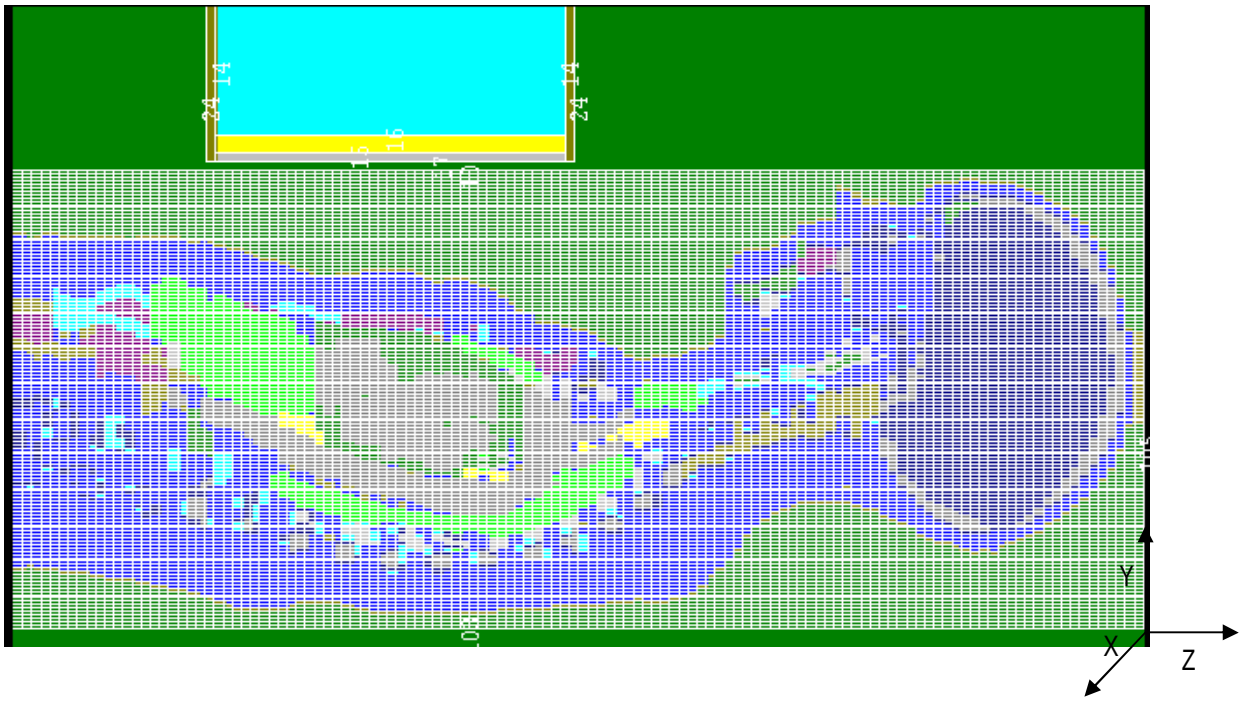


Fig.3.9 Longitudinal view of the ICRP female phantom with Phoswich detector

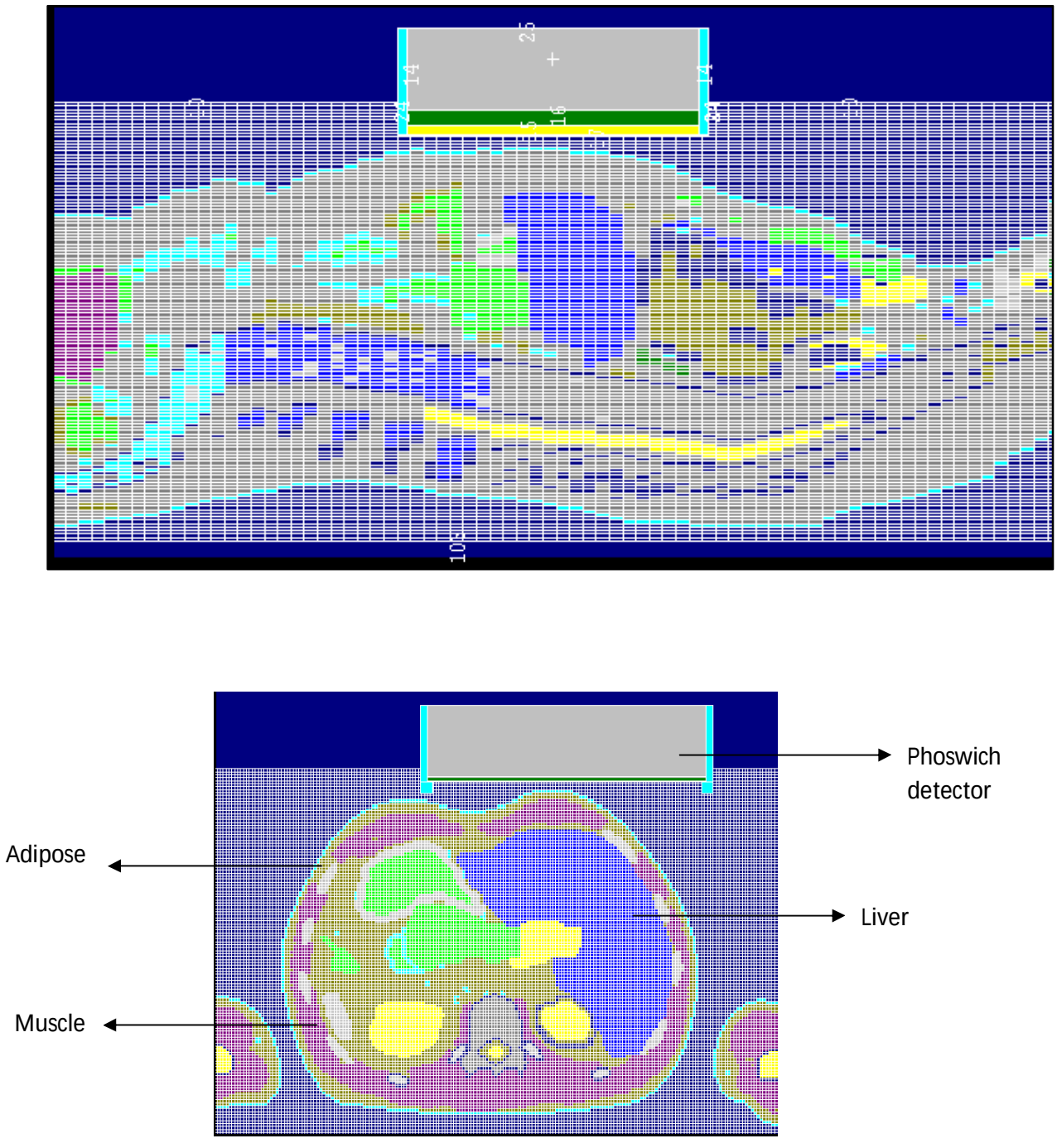


Fig.3.10 Longitudinal (top) and transversal (bottom) view of the detector positioned over the liver of ICRP male phantom

Hence simulation was carried out to estimatethis factor. The Compton scattering factor due to 59.54 keV in 17 keV region for lung contamination was estimated from the simulated spectrum of 59.54 keV gamma photons. In addition to this the contribution from the activity in the liver to the lung measurement when an old intake already exists, was estimated by positioning the detector at the lungs and retaining the liver as source. Similarly the contribution from the activity in the lungs to the liver measurement was also simulated. The simulated calibration factors and the cross talk values were compared with the measured values.

Similarly for female phantom the calibration factor for ^{239}Pu and ^{241}Am deposited in the lungs were simulated. In the case of female workers, keeping the Phoswich detector in the front side will be difficult for subjects with large breast size. Studies have indicated the differences in the breast size would result in a variation of 50% in the calibration factors when the subjects are counted for ^{241}Am. The estimation of the breast size is also a complicated task and it varies with the ethic group, age etc. So simulations were carried out to calibrate the Phoswich detector, for posterior counting geometry using ICRP female voxel phantom (Fig.3.11).Calibration factor was estimated for 59.54 keV gamma photons emitted by ^{241}Am and compared with the supine measurement.

During the calibration of a counting system, the uncertainty on the counting efficiency can be as low as 5% [128] whereas, when these calibration factors are applied to a measured data the uncertainty in activity estimation can be upto 50%. In lung measurement, the positioning is done based on the anatomical reference (sternal notch). This may lead to operator error in the placement of the detector. Therefore uncertainty in efficiency may arise due to the positioning of the detector over the subject/phantom. For low-energy photon measurements, the error due to detector positioning will have a large impact on the estimated activity [129,130].

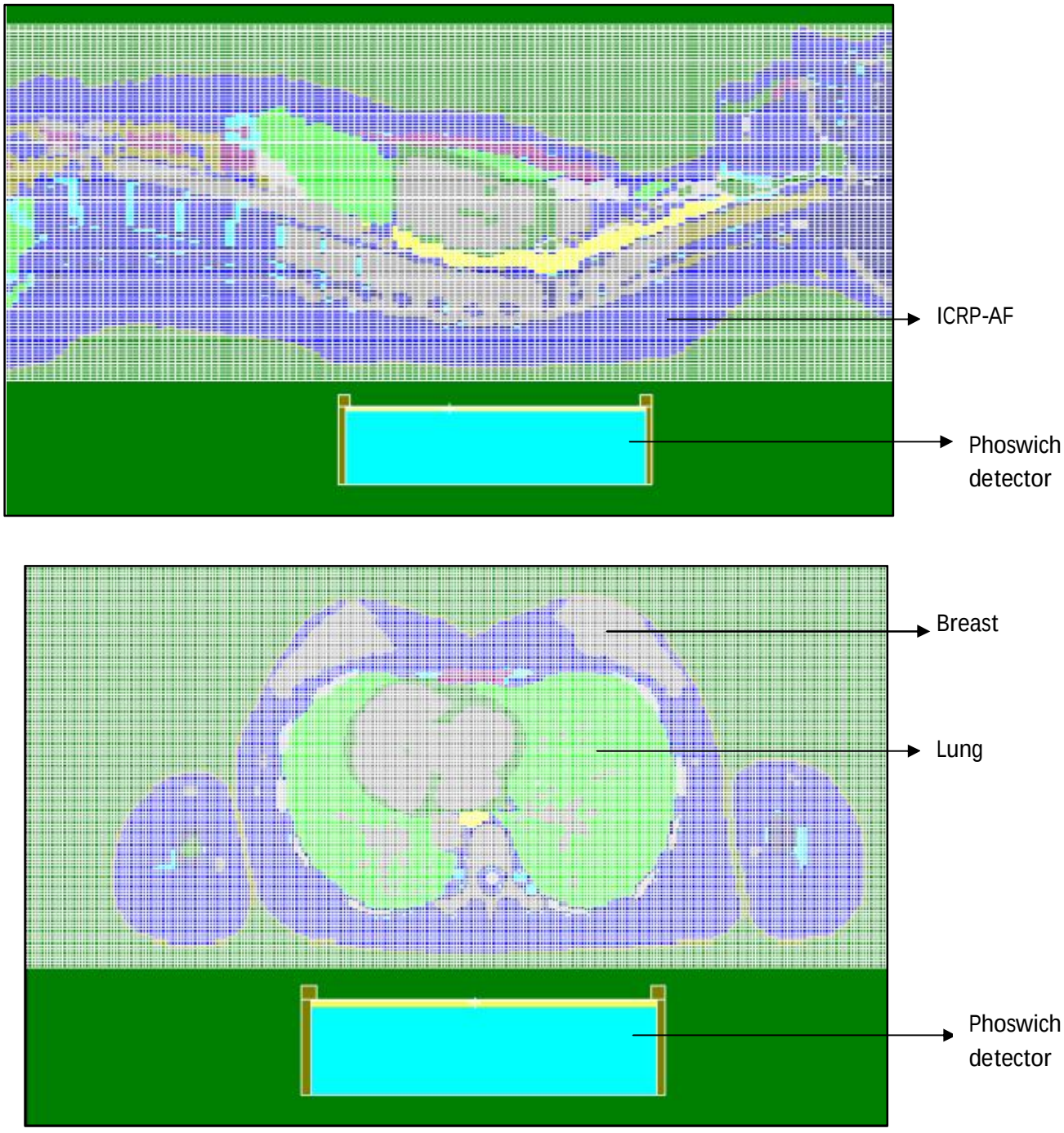


Fig.3.11 Longitudinal (top) and Transversal (bottom) viewof the detector positioned at the back of the ICRP female phantom

To estimate the uncertainty due to detector positioning, several simulations were carried out with the detector placed at different locations over the chest of the ICRP male phantom.

The detector response was calculated considering a small displacement in three axes corresponding to displacements along left - right direction (X), displacements along the height of the phantom (Z) and increase in the distance between the phantom and the detector (Y). Variation in the tilting angle was not considered as there is no degree of freedom to rotate the detector.

Modeling to establish efficiency curve for LEP measurement: Till now the radionuclide specific calibration factors were simulated. If an efficiency curve is generated for a range of energies of our interest (upto 100 keV), calibration factor for any radionuclide emitting energy within the range could easily be obtained. To achieve this, goal theoretical simulations with 32, 81, 93keV gamma photons corresponding to the ^{133}Ba characteristic X-ray, ^{133}Xe and ^{234}Thwere carried out and an efficiency curve for the NaI(Tl) crystal of the Phoswich detector was established.

Indian voxel phantom

As a first step towards the construction of Indian voxel phantom, the Indian thorax phantom was constructed by scaling down the ICRP male voxel phantom to the dimension of the Indian Adult reference man. Only the thorax part was considered. The ratio of the height of the Indian standard adult and ICRP male voxel phantom in 'Z' direction was multiplied with the ICRP-AM voxel size to estimate the new voxel size. In 'X' and 'Y' direction the ratio of the respective dimensions of the Indian trunk and the ICRP male voxel phantom dimension was taken. Similar scaling has been carried out by Doerfel and Heide B [131].The total mass of both the lungs of the constructed Indian voxel phantom was 477 g which was closely matching (<5%) with the reference Indian adult [54]. The chest wall thickness of the

phantom was 2 cm which is within the range of chest wall thickness of the Indian population [132]. This phantom was modeled along with the Phoswich detector. The calibration factors for ^{241}Am and ^{239}Pu in the lungs have been estimated.

3.4.3 Modeling for High Energy gamma Photon measurements

As mentioned in chapter 2, the PSD electronics of the Phoswich detector has been configured to simultaneously measure both the low energy X ray/gamma photons and the high energy gamma photons. High energy gamma photons i.e. above 250 keV are mainly stopped by CsI crystal of the Phoswich detector. In order to validate the Phoswich detector modeling for HEP measurement, point source efficiencies for gamma photons above 250 keV has been simulated by tallying the gamma photons interacting with CsI crystal. The GEB factors for CsI are used for this purpose. The interaction of gamma photons with CsI crystal was tallied.

Numerical calibration of the detector for HEP present in the lungs was made using the ICRP male voxel phantom. Calibration factors were obtained for 356 keV, 662 keV, 834 keV, 1332 keV and 2754 keV

3.5 Modeling of Thyroid monitor

Thyroid monitor along with neck phantom is modeled. The thyroid was modeled exactly as in the phantom. The neck part was modeled as a cylinder. The clavicles and the sternum were also modeled. In order to validate the modeling of the detector and the phantom, uniform distribution of ^{131}I in the thyroid was simulated. ^{131}I spectrum was generated with photon energies and the abundance provided in ICRP 107. Calibration factor for ^{131}I was estimated from the simulated spectrum using the photopeak counts of 364 keV. The modeled thyroid detector is shown in Fig.3.12.

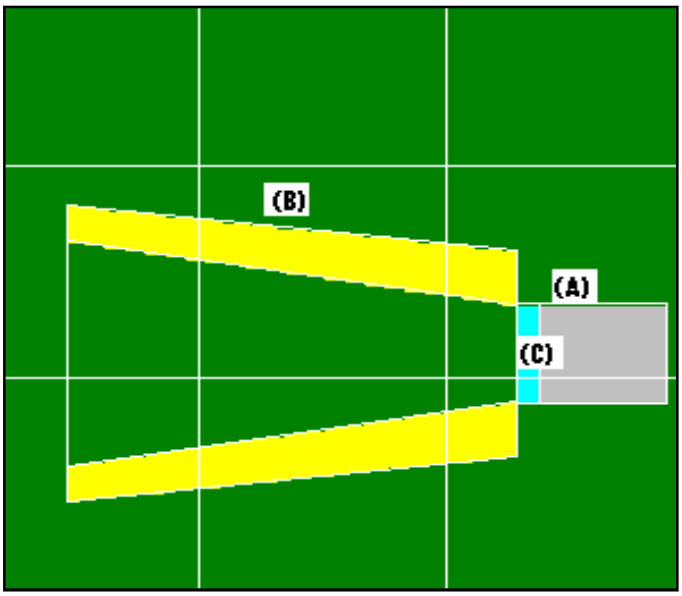


Fig.3.12 Model of thyroid monitoring system (A)-NaI crystal, (B) SS window (C) Flat field collimator

3.6 Conclusions

In-vivo monitors are calibrated using physical phantoms. These phantoms have limitations like they represent only the standard man while the individual being monitored could be very different, have limited shelf-life, represent fixed distribution of activity (either homogenous or heterogeneous). It is very difficult or sometimes impossible to study the influence of detector size, subject morphology, shield, source distribution pattern etc., through experimentation. Moreover there is no physical phantom representing female torso. So, numerical calibration is needed to supplement the physical phantom calibration.

But prior to adopting numerical simulation to new scenarios, modeling of the counting system and the phantoms need to be validated through experiments. Accordingly, numerical modeling of different variety of in-vivo monitoring systems with relevant phantoms have been carried out and validated with the experimental measurement. After duly validating the procedure, the study has been extended to generate calibration factors for (i) short lived radionuclides and (ii) radioactive gaseous fission products, which cannot be obtained with the

use of physical phantoms. Use of numerical simulations is a good technique to establish calibration factors (LEPs) for female subjects for whom no realistic physical phantom is available till today. The study has also enabled to find the influence of various parameters like source distribution, variation in the body or organ size, detector positioning on the calibration factor. The numerical simulation has also been applied to compare two different phantoms for the calibration of Shielded chair. Indian thorax voxel phantom has also been developed by scaling the ICRP-AM voxel phantom to the size of the Indian reference man. Chapter 4 gives the results and discussion of the simulation and compares them with measurements. It also compares the phantoms as a calibration tool.

Chapter-4

Comparison of the simulated results with measurements –Validation

4.0 Introduction

This chapter discusses the validation of theoretical modeling of various in-vivo monitoring systems with experimental results. This chapter also deals with the estimation of uncertainties in calibration factors due to the distribution of sources at different depths in the Masonite cut sheet phantom. A comparison of the calibration factors as well as CSFs of shielded chair using Masonite cut sheet phantom and Indian adult BOMAB phantom are presented. Quantification of the error in the estimation of the partial body activity using the calibration factors of wholebody distribution is described. The uncertainty associated with the estimation of ^{133m}Xe present in the thorax region using the calibration factors of wholebody and thorax region is discussed. This chapter also presents a study on the optimum number of static detector locations required to simulate the scanning mode of shadow shield counting system. The efficiencies of Phoswich for ^{241}Am present in lungs and the liver obtained with LLNL phantom measurements are compared with that of ICRP male voxel phantom. The quantification of the sources of uncertainties like detector positioning and body size in the estimation of actinides using Phoswich detector are also discussed.

All the deviations calculated in this chapter are with respect to the measured value.

$$\text{Deviation \%} = \frac{simulated\ value - measured\ value}{measured\ value} \qquad 4.1$$

4.1 Shielded chair

4.1.1 Validation of shielded chair model using Masonite cut sheet phantom

Validation of the shielded chair modeling was done by comparing the simulated spectrum and calibration factors with the measured ones. Generally validation is done by comparing the photopeak calibration factors but since CSFs are also studied the entire simulated spectrum is compared with the measured one. The measured ^{137}Cs spectrum and the simulated spectrum with and without all shielding components of the counting system are shown in Fig. 4.1. It is observed that though the deviation in the photopeak region is less,

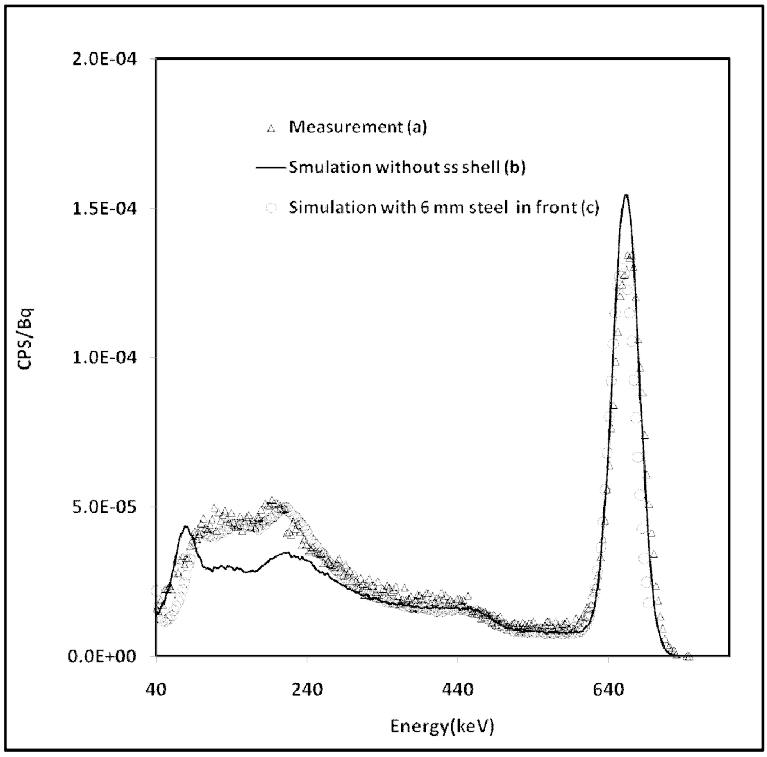


Fig.4.1 Spectrum of ^{137}Cs loaded in Masonite cut sheet using SC (a)Measured spectrum (b) Simulated spectrum without SS shell, support plate and detector shielding (c) Simulated spectrum with all the shielding components

there is a large mismatch in the scattering region (40 - 400 keV) when the modeling was done without considering the shielding components of the system. This will result in large error in the estimation of CSFs which will lead to inaccurate estimation of activities of the low energy gamma emitters in the presence of high energy gamma emitting radionuclides. This deviation in the CSFs can be reduced by simulating all the surrounding shielding components. This can

be inferred from spectrum (a) and (c) of Fig.4.1. A good agreement with respect to the spectral shape, FWHM of photopeak, counts in the full energy peak and counts/keV in all the energy regions including the scattering region was observed. From this study it is clear that the scattering due to surrounding/shielding components greatly influence the counts in the 40 -400 keV region (Table 4.1). However, when all the components of exact dimension were modeled the measured and the simulated spectra matched within 10% in all regions validating the modeling of SC counting system. This was found to be consistent for other radionuclides also.

Table 4.1 Influence of scattering from shielding components in the lower energy region for 662keV gamma photons

Component added	counts/photon in 40-400 keV
without SS shell	0.003227
3 mm SS in front and 6 mm SS in back	0.003602
shielding around the detector	0.003707
6 mm SS in front	0.003902
Measurement	0.004317

4.1.2 Comparison of simulated and measured calibration factors - SC

The efficiency curve plotted using simulated values is shown in Fig.4.2. The calibration factors obtained from simulation are fitted using exponential function given by

$$\varepsilon = a \times \exp(-b \times E) \qquad 4.2$$

Where, ε is the calibration factor (Counts/photon), E is the photon energy in keV, a and $b$are fitting constants. Using the fitted equation, the calibration factors for radionuclides which are not readily available for calibration purpose can be estimated. Table 4.2 gives the predicted calibration factor (using equation 4.2) along with the measured values for typical energies.

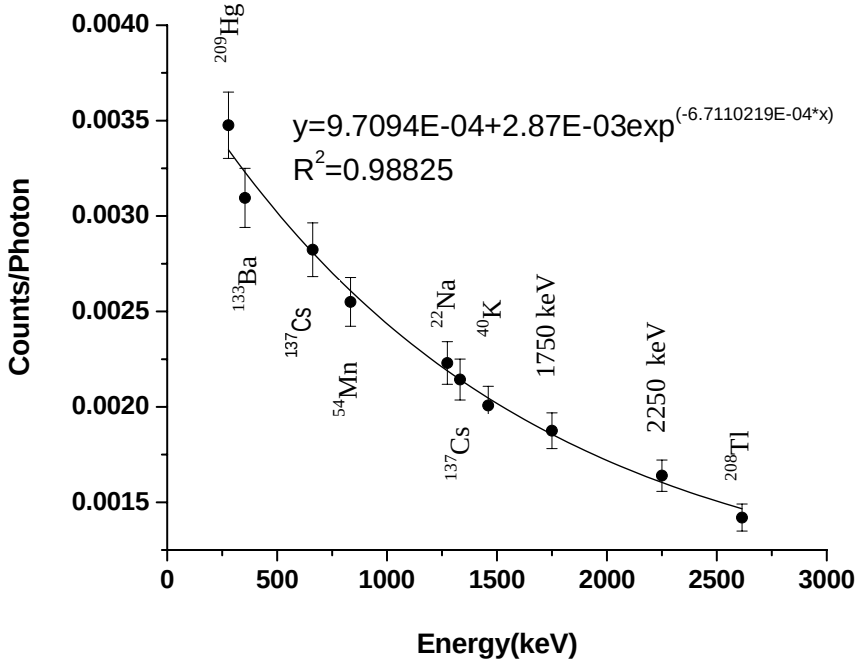


Fig.4.2 Simulated efficiency curve of shielded chair using Masonite phantom

Table 4.2. Measured and the calculated calibration factors of SC using Masonite phantom

Energy(keV)	Calibration factor (Counts/photon)		Ratio C/E
	Measured (E)	Simulated (C)	
279	3.60E-03	3.35E-03	0.93
662	3.01E-03	2.81E-03	0.93
834	2.70E-03	2.60E-03	0.96
1274	2.38E-03	2.19-03	0.92
1332	2.32E-03	2.15E-03	0.92

The ratio of the predicted calibration factor to the measured calibration factor varies from 0.92 to 0.96 for the energy range 250 keV to 1500 keV. The agreement of the measured and the predicted calibration factors is within -8%. These predicted values are well within the performance criteria of 50% to -25% (ANSI 1996) [133] thereby validating the use of equation 4.2 to estimate the efficiency. The difference in the simulated and experimental

(efficiency) values could be due to the error in the source activity and the position of the sources in the phantom [134]. Simulation provided additional calibration factor data in the energy range 1500 - 3000 keV.

4.1.3 Comparison of measured and simulated CSFs in different energy region

Apart from calibration factors, CSFs in different reference energy regions due to different radionuclides were also estimated in terms of CPS/Bq from the respective simulated spectrum by correcting simulated value with the yield of the high energy photon are summarized in Table 4.3. The deviations between the measured and the simulated values are within ±20% in all the reference regions, which is within ANSI criteria. Literature on the numerical estimation of CSFs is scanty and their comparison with the measurement is not reported in literature.

Table 4.3 Measured and simulated CSFs of SC using Masonite phantom

Filled Radionuclide (Energy-keV)	CSFs in other ROI(CPS/kBq)							
	^{57}Co (110-140 keV)		^{203}Hg (230-330 keV)		^{133}Ba (330-415 keV)		^{137}Cs(590-720 keV)	
	Measured	Simulated	Measured	Simulated	Measured	Simulated	Measured	Simulated
^{203}Hg(279)	1.06	0.95	0.00	0.00	0.00	0.00	0.00	0.00
^{137}Cs(662)	0.70	0.61	1.24	1.19	0.69	0.61	0.00	0.00
^{60}Co(1173&1332)	1.23	1.25	2.30	2.00	1.23	1.02	0.86	0.70

4.1.4 Influence of source depth on the calibration factors

In Masonite cut sheet phantom, sealed point sources can be loaded at different depths during calibration. The variation in the sources depth will affect the calibration factors derived for the system. The calibration factor of the SC system with Masonite phantom having uniform distribution of ^{137}Cs was theoretically simulated. This uniform distribution can be represented experimentally by the use of multiple point sources. Hence, for the case of

Masonite cut sheet phantom, the source depth which will closely simulate the uniform distribution was estimated. In order to accomplish this, simulations were carried out by loading point sources at different depths of the phantom. Calibration factors were estimated in all the cases and compared with the uniform distribution. The simulated calibration factors with sources distributed at different depths are shown in Table 4.4 along with the calibration factor for uniform distribution. From the table it is clear that the source distributed at mid-thickness gives almost same (>2 %) calibration factor as that of uniform distribution. For the distribution of sources at the bottom and top surface the variation in calibration factor with respect to mid-thickness distribution for 662 keV gamma photons is -40% and +60% respectively. As the energy increases the deviation decreases (-33% to 51% for 1332 keV) and vice versa (-52% and 75% for 122 keV).The observed trend is due to self attenuation and geometrical factor. This study showed that 5 sources distributed at mid-thickness gives calibration factors close to uniform distribution.

Table 4.4 Variation of ^{137}Cs calibration factor (Counts/photon) with source depth

Source distributed at						
Middle	Bottom		Top		Uniform	
	CF*	% Dev	CF*	% Dev	CF*	%Dev
2.81E-03	1.67E-03	-40	4.43E-03	59	2.87	2

*Note: CF = calibration factor

4.1.5 Comparison of calibration factors and CSFs - BOMAB phantom and Masonite cut sheet phantom

Shielded chair is calibrated using in-house built Masonite cut sheet phantom. Indian adult BOMAB phantom is the Indian representative of the standard international phantoms with uniform distribution of sources. In order to validate the use of Masonite phantom as a calibration tool for Indian reference adult a comparison of the calibration factors and CSFs of both the phantoms were made using shielded chair system. For this, Indian BOMAB phantom

was modeled along with SC. The calibration factors and CSFs were estimated for different energies. Table 4.5 gives the simulated calibration factors for the BOMAB phantom and

Table 4.5 Comparison of calibration factors of SC using BOMAB and Masonite phantoms

Energy(keV)	Calibration factor (Counts/photon)		% Deviation (BOMAB –Masonite)/Masonite
	BOMAB	Masonite	
279	3.33E-03	3.35E-03	-0.6
662	3.14E-03	2.81E-03	12
834	2.84E-03	2.60E-03	8.5
1332	2.42E-03	2.19E-03	10

Masonite cut sheet for different photon energies.

From the table, it can be observed that the calibration factors of Masonite phantom and of BOMAB phantom varies between -1% and 12%. Similarly the Compton scattering factors (CSFs) obtained using measurement with Masonite phantom and simulated with BOMAB phantom for various energies are listed in Table 4.6.

Table 4.6 Comparison of CSFs of SC simulated using BOMAB phantom and measured using Masonite phantom

Radionuclide	Contribution in other ROI(CPS/kBq)					
	^{203}Hg (230-330 keV)		^{133}Ba(330-415 keV)		^{137}Cs(590-720 keV)	
	Measured	Simulated	Measured	Simulated	Measured	Simulated
^{133}Ba	1.45	1.61	0	0	0	0
^{137}Cs	1.24	1.13	0.69	0.62	0	0
^{60}Co	2.3	2.23	1.23	1.15	0.86	0.87

The agreement between the measured and the simulated CSFs are found to be within 10%. The agreement between the calibration factors and the CSFs of both the phantoms in the energy range 250 keV to 3000keV is within the acceptable ANSI Criteria, confirming that the Masonite phantom is equivalent to BOMAB phantom in this energy range. So the use of Masonite phantom as an alternate tool for calibration of wholebody counters is justified.

4.1.6 Simulation of partial body efficiencies

Radionuclides normally get deposited in different parts of the body like thorax, abdomen, neck etc., depending on the type of radionuclide and the mode of intake.

In order to estimate the calibration factors of various radionuclides for partial body distribution, one require phantom parts in multiple sets, each loaded with different radionuclides which is practically difficult. Estimation of partial body activity using calibration factors corresponding to whole body will result in large error [21]. Hence partial body efficiencies were simulated for a few radionuclides present in different parts of the body. Table 4.7 summarizes the theoretical calibration factors for sources distributed in different parts of the body along with the simulated calibration factors for uniform

Table 4.7 Calibration factor of SC for different organs using BOMAB phantom

Organ	Calibration factor (CPS/Photon) for different energies			
	354(keV)	**662(keV)**	**834(keV)**	**1332(keV)**
Neck	4.37E-03	----	---	----
Thorax	---	4.67E-03	4.97E-03	4.17E-03
Pelvis	---	1.48E-03	1.63E-03	1.47E-03
Wholebody	3.25E-03	3.14E-03	2.84E-03	2.42E-03

distribution. From the table it is clear that the activity of ^{131}I present in the thyroid region is overestimated by a factor of 1.35 when the calibration factor of wholebody distribution is used for the activity estimation. The overestimation in the activity of the thorax region varies from 1.48 to 1.72 for the energy range 600 to 1332 keV. The underestimation in the activity of pelvis region varies from 0.47 to 0.6 for the same energy range.

Hence, organ specific calibration factors are required to improve the accuracy in the estimated activity in partial body and these values can be numerically simulated easily without physical phantoms.

As a practical application, the calibration factor for ^{133m}Xe for thorax region was obtained through simulation. This value was used for the estimation of ^{133m}Xe activity in an exposure event. Had the activity estimation done through the use of whole body calibration factor, it would have resulted in an overestimation of the activity by a factor of 1.5.

4.2 Shadow shield counter

4.2.1 Validation of Shadow shield counter modeling with Masonite cut sheet phantom

The SSC has scanning mode geometry and the calibration factor for the scanning mode was obtained by averaging the calibration factors of 10 static detector positions separated by a distance of 16 cm along the height of the phantom. The simulated calibration factor for ^{137}Cs was lesser by 16%, compared to the calibration factor obtained through scanning mode measurement. In order to reduce this error, distance between two adjacent positions was adjusted to 10 cm, which is equal to the diameter of the detector. This makes the number of positions to 16. The deviation in the simulated and the measured calibration factor is less than 5%, which is of the order of the error in the calibration measurement, thereby validating the method adopted for the simulation of scanning mode of the SSC. This study revealed that the optimum displacement of detector should be equal to its diameter to obtain calibration factors within 5% to 10% deviation in the energy range of 250 keV to 1.5 MeV.

4.2.2 Comparison of simulated and measured calibration factors–Shadow shield counter

Using the validated model, the calibration factor of SSC with Masonite cut sheet phantom was estimated for various energies. Fig.4.3 gives the simulated and the measured efficiency values for various energies. The simulated values were fitted to the exponential equation given in 4.2 and the empirical constants '*a*' and '*b*' were obtained as 0.00105 and 0.0013 respectively.

Table 4.8 gives the calibration factors determined using the fitted equation and the measured

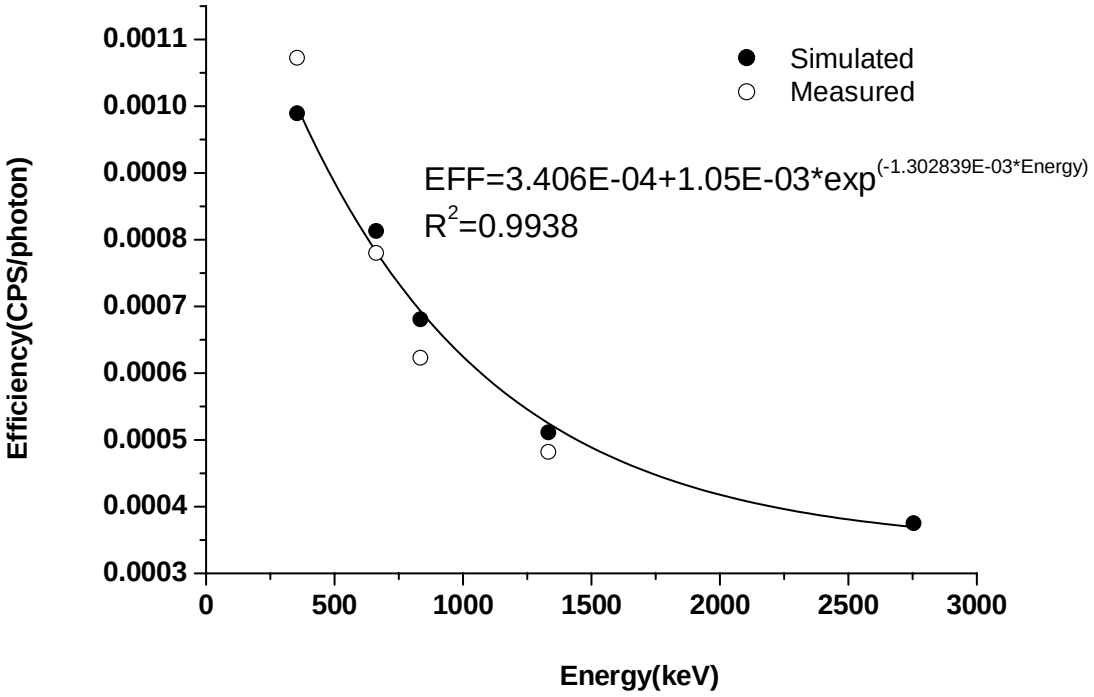


Fig.4.3 Measured and the simulated efficiency values of SSC with Masonite cut sheet phantom

ones for different energies. The simulated values obtained for scanning mode are found to be matching within ±12% with the values obtained through measurements in scanning mode. This deviation is within the acceptable ANSI criteria.

Table 4.8 Simulated and measured calibration factors (CPS/photon) of SSC with Masonite phantom

Energy(keV)	Measurement (E)	Simulation(C)	C/E
354	1.07E-03	1.003E-03	0.93
662	7.80E-04	7.84E-04	1.01
834	6.23E-04	6.95E-04	1.12
1332	4.84E-04	5.26E-04	1.09

4.3 Phoswich detector

4.3.1 Validation for Low Energy gamma Photon measurements

The modeling of the Phoswich detector was verified by comparing the simulated and measured calibration factors for ^{241}Am point source. The simulated efficiencies for 17 keV and 59.54 keV gamma photons are estimated as 0.0287 CPS/Bq and 0.0263 CPS/Bq respectively. These simulated efficiencies are observed to be lower by 4.5 % and 3.3%compared to the measured values for the same energies, thereby validating the detector modeling.

4.3.2 Validation of voxel phantom modeling

The validation of the voxel phantom modeling was done using LLNL voxel phantom having TP alone. The efficiencies for ^{241}Am and Natural Uranium present in the lungs were numerically estimated. Table 4.9 shows the simulated and the measured efficiencies of LLNL phantom with TP for various radionuclides. The deviation between the simulated and the measured calibration factor for LLNL phantom with TP is 2% for ^{241}Am thus validating the voxel phantom modeling. The simulated and the measured efficiencies of Natural Uranium show a deviation of <2% illustrating the fact that the distribution of 6 source plugs in each lung could simulate nearly a uniform distribution. Similar studies by Hunt et al. [135] have also shown that the geometrical mean of efficiencies obtained from point source distributed at the front, middle and back of the lungs is close to the calibration factor for homogenous distribution.

Table 4.9 Measured and simulated efficiencies of ^{241}Am and Natural U using LLNL phantom with TP

Radionuclide	Energy used	Efficiency (CPS/kBq)		Deviation (%)
		Measured	Simulated	
^{241}Am	59.54	1.30	1.32	1.7
Natural Uranium	63 and 93 keV	7.05	7.2	1.9

4.3.3 Validation for High Energy gamma Photon measurements

Phoswich detector with a few selected high energy photon emitters like ^{137}Cs, ^{133}Ba and ^{60}Co were modeled. The measured point source calibration factors for different high energies and the corresponding simulated calibration factor are listed in Table 4.10.

Table 4.10 Measured and simulated calibration factors of Phoswich detector (HEP – point source)

Energy (keV)	Calibration factor (CPS/Photon)		% deviation
	Measured	Simulated	
356	0.0733	0.0753	2.7
662	0.0483	0.0500	3.5
1332	0.0291	0.0298	2.5

From the table it is clear that the maximum deviation between the measured and simulated values is <5%. This validates the Phoswich detector model for high energy photon measurement.

4.3.4 Calibration factor of Phoswich detector for ^{239}Pu present in the lungs of LLNL phantom

Having validated the Phoswich detector modeling for LEP measurement and the voxel phantom modeling technique, simulation was carried out to derive the calibration factor of ^{239}Pu present in the lungs sets of LLNL phantom with TP. The estimated calibration factor is 75 CPS/MBq. This could not be verified experimentally due to the non-availability of ^{239}Pu loaded lung sets in the LLNL phantom at IGCAR, presently.

4.3.5 Efficiency for ICRP voxel phantoms

Efficiency of ^{241}Am present in the lungs: The validated Phoswich model was used to estimate the calibration factors of different actinides present in the lungs and liver of ICRP-AM voxel phantom. The measured efficiency curve for ^{241}Am obtained using LLNL phantom

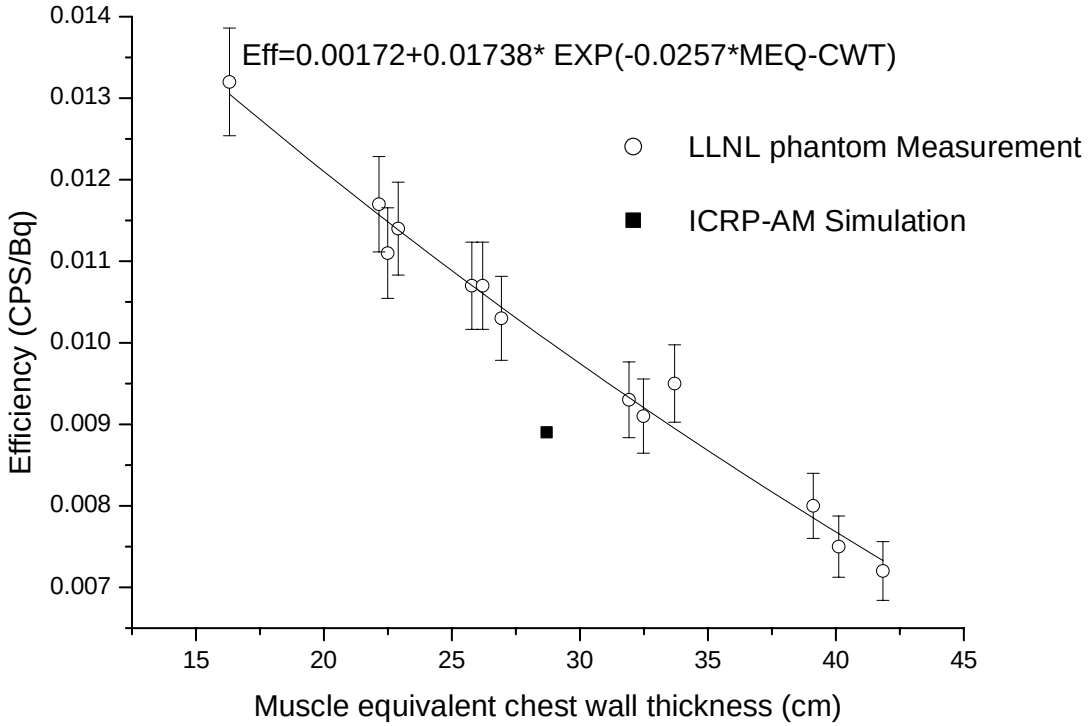


Fig.4.4 Efficiency curve of LLNL phantom along with the simulated efficiency of ICRP AM

having different MEQ-CWT is shown in Fig.4.4 along with the simulated efficiency value of ICRP-AM.

Using the fitted equation established from the measurements with LLNL phantom, the efficiency value corresponding to the MEQ-CWT of ICRP male phantom was estimated. Table 4.11 compares the results obtained from the measurement of LLNL phantom and simulation using voxel phantoms. The simulated efficiency value of ICRP male voxel phantom (Table 4.11, S.No. 2) is less by 13%. This deviation is due the difference in the lung size of the phantoms. The ICRP male lungs are narrower and deeper compared to the LLNL lungs. Because of the larger size of the detector, the efficiency increase due the reduction in width is not greater than the reduction in efficiency due to the increase in the depth. So, overall the efficiency has got reduced. The same difference in the lung shapes is quoted for the difference in the calibration factor at 60 keV for JAERI and LLNL phantom by Kramer [117].

Table 4.11 LLNL measured and voxel phantom simulated calibration factors (CPS/kBq) for Phoswich detector

S.No	Radionuclide	Experiment		Simulation		% Deviation #
		Phantom	CF*	Phantom	CF*	
1	Pu-239	JAERI	0.00676	ICRP male voxel phantom	0.005	-26
2	Am-241	LLNL	9.9		8.7	-13
3	Am-241 liver		20.78		*23.54*	13
4	Contribution to lung counts from liver		5.9		5.4	-9.7
5	Contribution to liver counts from lungs		2.9		2.5	-14
6	Natural Uranium		5.92		5.28	-12
7	Am-241	…	…	ICRP female voxel phantom	9.04	
8	Pu-239	….	…		0.0152	
9	Pu-239	…	…	Indian thorax phantom	0.0146	
10	Am-241	LLNL	27		12	-56

Note *:CF= calibration factor, # with respect to the measured values

.

Calibration factor of ^{239}Pu present in the lungs of ICRP-AM: The simulated calibration factor for ^{239}Pu present in the lungs of ICRP-AM for Uranium Lx-rays is given in Table 4.11. The simulated calibration factor was compared with the measured value obtained using the JAERI phantom as there is no ^{239}Pu loaded lung set in LLNL phantom. The simulated value (Table 4.11, row 1) is 26% lesser than the measured value. The deviation is due to the difference in the physical and the simulated phantom with respect to the MEQ-CWT, shape of the lungs or other organs etc. The variation of calibration factors with respect to the MEQ-CWT could not be estimated as the JAERI phantom did not have overlay plates with different MEQ-CWT. Variation in the lung size and the heart size of the phantoms could have also contributed to the difference.

CSF in 17 keV region due to 59.54 keV gamma photons: The simulated CSF in 17 keV region due to the 59.54 keV gamma photons of ^{241}Am was estimated to be 0.748 CPS per kBq of ^{241}Am activity in lungs. This factor is necessary for correction of 17 keV counts due to the scattering of 59.54 gamma photons when ^{239}Pu is measured in the presence of ^{241}Am. This factor depends on the CWT and composition. When this contribution is not subtracted it will result in the overestimation of the activity of the ^{239}Pu.

Calibration factor for Natural Uranium present in the lungs of ICRP-AM: The simulated spectrum of Natural Uranium present in the lungs of ICRP-AM is shown in Fig.4.5 along with the spectrum measured using LLNL phantom. From the figure it is clear that the simulated spectrum showed a decrease in counts in the energy region from 70keV to 90keV and also above 100 keV compared to the measured spectrum. The reason for the difference in counts is because the simulation did not include the HEP emitted from the immediate daughters of ^{238}U (^{234m}Pa) and the 185 keV photons from ^{235}U. When these high energies were also added in the simulation, the counts in the 70 to 90 keV region and above 100 keV

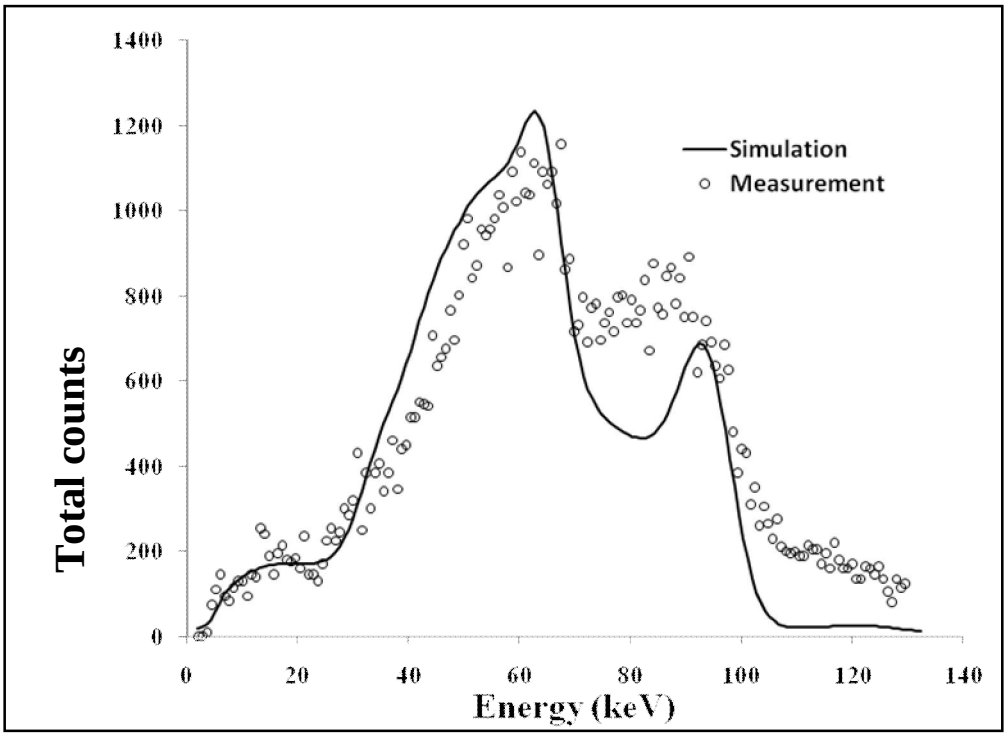


Fig.4.5. Measured and simulated spectrum of Nat U present in the lungs of ICRP-AM not including HEPs

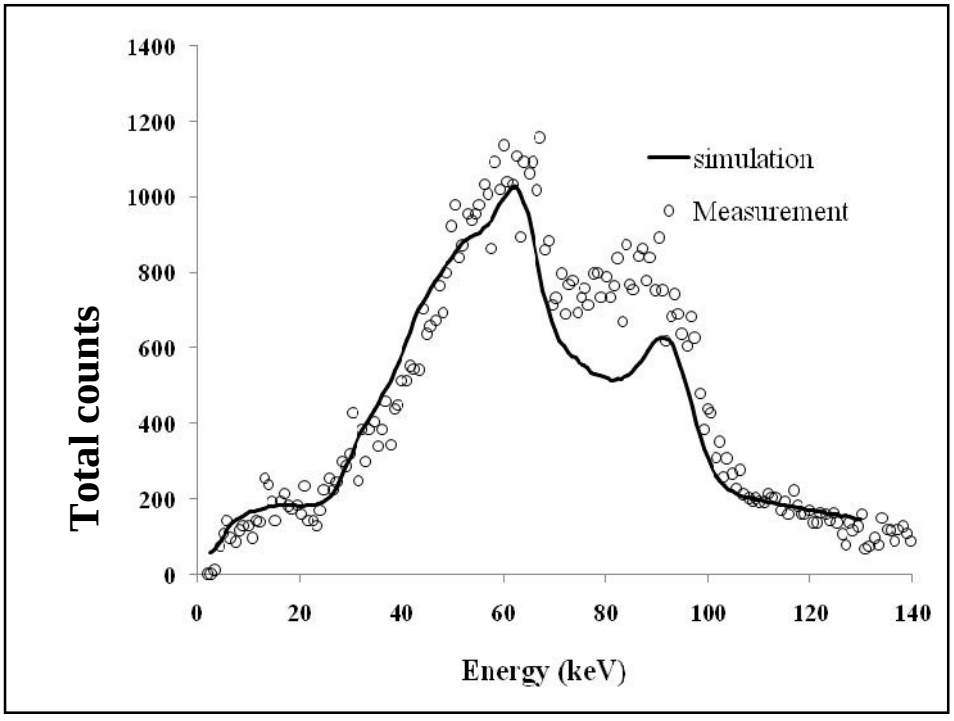


Fig.4.6. Influence of HEPs in simulated Nat U spectrum

were closer to the measured values as shown in fig.4.6. Exact matching could not be obtained since the PSD used in the Phoswich detector is not 100% efficient in discriminating the interference from HEPs, resulting in slightly higher counts in the measured spectrum. In

addition, the Bremsstrahlung due to betas (500 and 2310keV) of ^{234m}Pa also contributes to the increased counts in the measured spectrum [124]. Calibration factor of Natural Uranium was estimated from the simulated spectrum and is given in Table 4.11. An underestimation of 12% in the calibration factor was found (Table 4.11, row 6) in the simulation compared to the measured one with same MEQ-CWT. This is equivalent to the deviation obtained for uniform distribution of 60 keV indicating that the six vial distribution at the centre of each lungs is equal to uniform distribution.

Establishing an efficiency curve for low energy photons: Efficiencies were estimated for other low energies like 32, 81, 93 keV photons present in the lungs and are shown in Fig.4.7. The efficiency value is lower for 17 keV, due to the attenuation in the human chest wall and

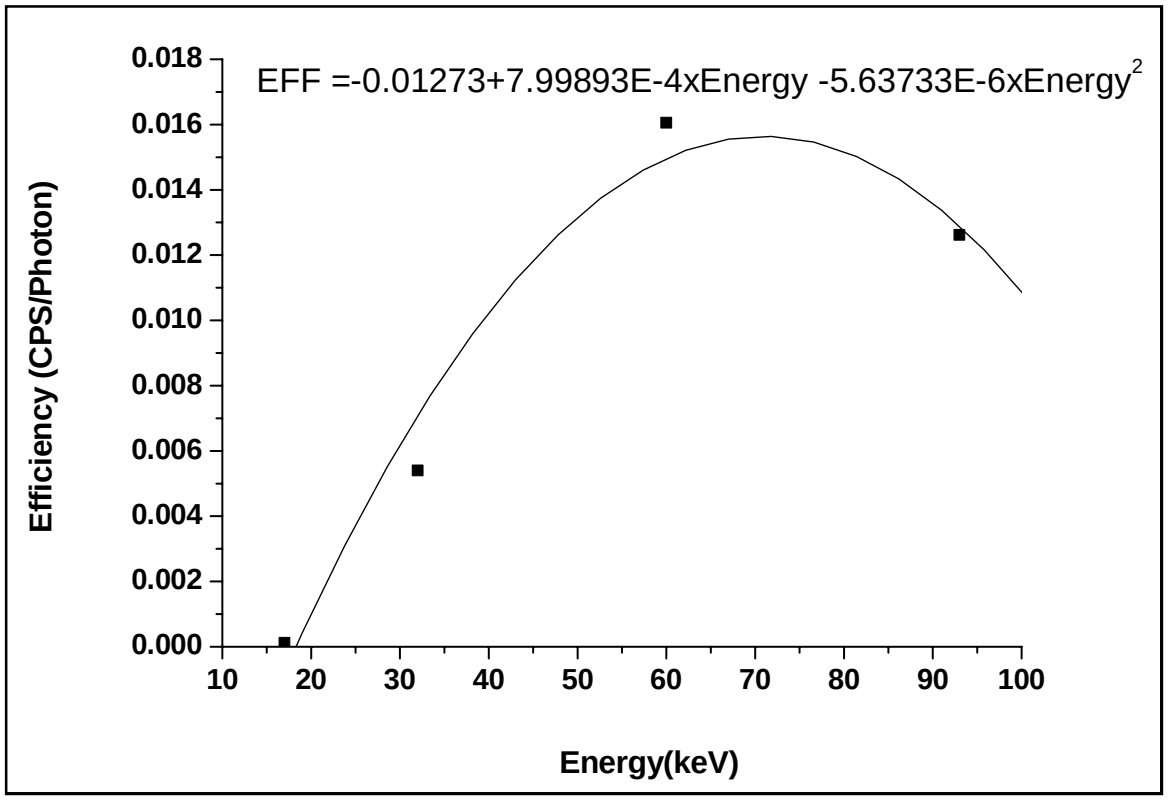


Fig.4.7 Efficiency plot of Phoswich detector for low energy photons

found to increase with the increase in energy because the smaller thickness of the NaI(Tl) detector results in lesser counts in the photopeak region.

Calibration factor of ^{241}Am present in the liver of ICRP-AM: The calibration factor for ^{241}Am in the liver was estimated theoretically as well as experimentally and are given in Table 4.11. It was observed that the simulated calibration factor (Table 4.11, Row 3) is 13% higher than measured calibration factor for the same MEQ-CWT. This variation can be attributed to the uncertainties in the certified activity of the source and minor variations in the physical dimensions of both the phantoms. The measured spectral response of ^{241}Am in the liver of

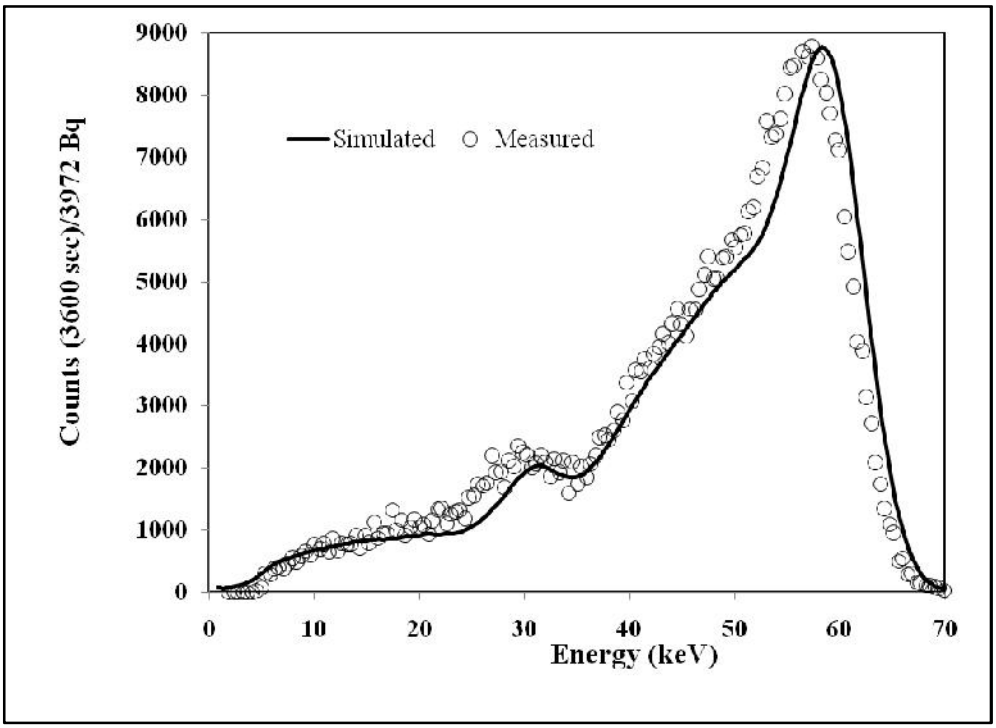


Fig.4.8. Measured (LLNL) and Simulated (ICRP male phantom) spectrum of^{241}Am present in liver

LLNL phantom with 3B overlay which had a closer MEQ-CWT (3.04 cm) and the simulated one is shown in Fig. 4.8. It can be observed from the Fig.4.9 that both the spectra are matching with respect to peak position, peak area counts and the spectral shape.

Cross talk in lungs and liver: Significant portions of the inhaled Pu/Am can be found in liver, after a certain period of time. According to the biokinetic behavior of ^{241}Am, the activity in liver is maximum on 300th day after intake for M class and on 1000th days post intake for S class. This would be interfering with the lung measurements in follow-up in-vivo monitoring.

Similarly, while monitoring old intake through liver measurements, the lung activity due to new intake will interfere with the measurements. Hence, experiment as well as simulation was conducted to quantify these interferences for ^{241}Am. The cross talk to the detector placed at the lungs due to presence of activity in the liver was simulated as 5.4 CPS/kBq of ^{241}Am activity. It is 10% lesser (Table 4.11, row 4) compared to the measured value for the same MEQ-CWT.

The cross talk to the detector placed at the liver due to presence of activity in the lungs was numerically estimated as 2.5 CPS/kBq which is 12% (Table 4.11, row 5) lesser than the measured value for the same MEQ-CWT. Fig 4.9 gives the simulated ^{241}Am spectra obtained in both the cases. From the figure it is observed that the contribution from the activity in the liver to the lung measurement is more than the contribution from the activity in the lungs to the liver.

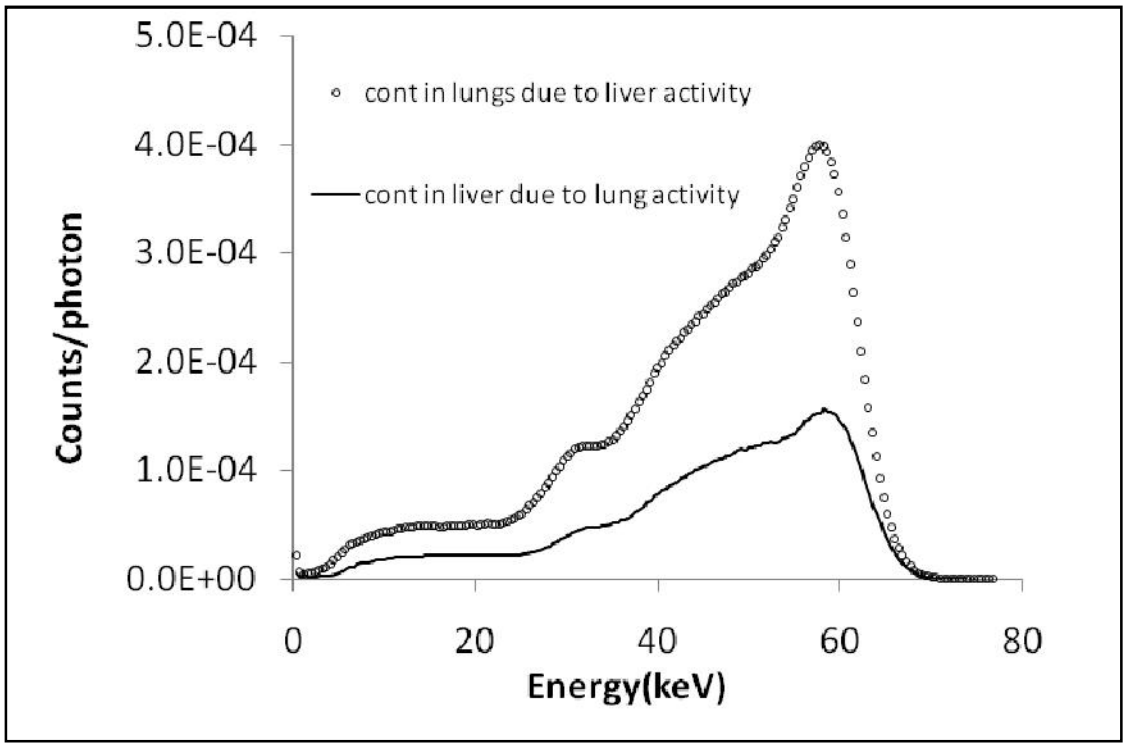


Fig.4.9. Simulated cross talk in lungs due to liver activity and vice versa

Calibration factor of ^{241}Am and ^{239}Pu present in the lungs of ICRP-AF (Anterior positioning of the detector): The validated Phoswich model was positioned over the anterior chest region of the ICRP-AF voxel phantom. Calibration factors of ^{241}Am and ^{239}Pu present in the lungs were estimated and is listed in Table 4.11. The simulated calibration factors for ^{241}Am and ^{239}Pu are1.5 and 3 times higher than that of the male phantom respectively. This is due to the presence of breast tissues which is mostly adipose in nature. Adipose tissue has lower attenuation coefficients compared to muscle owing to its lower density. Neither measurement nor the simulated value is available in literature for female phantoms for single Phoswich detector.

Posterior positioning of the detector: For the anterior positioning of the detector, the calibration factor is a function of breast size and one has to establish an empirical formula for estimating the breast size of females which has significant variation even amongst the same ethnic group [136]. In order to overcome the influence of the breast size on the calibration factors, an alternate placement of the detector was attempted by placing the detector at the back of the subject. The calibration factor of ^{241}Am present in the lungs for the detector placed on the back of the ICRP-AF phantom was simulated and found to be 7.9 CPS/kBq, which is 12 % less than the calibration factor obtained in the supine geometry. This reduction in calibration factor compared to supine geometry is due to attenuation of the gamma photons in the scapulae and spine. But still this can be used when the empirical relation for the breast size estimation is not available. The prone geometry for the female has 37% higher calibration factor compared to the supine geometry of ICRP-AM

4.3.6 Indian Thorax voxel phantom calibration factor

The validated Phoswich detector model was placed over the chest region of the Indian thorax voxel phantom in the same way as in ICRP-AM and the calibration factors of ^{239}Pu and ^{241}Am in the lungs were estimated. The calibration factors are listed in Table 4.11. The

calibration factor of ^{241}Am and ^{239}Pu for Phoswich detector using Indian voxel phantom were almost higher by 2 times and 3 times respectively than that of ICRP-AM. The higher calibration factor is due to the less thickness of the chest wall and decreased lung volume in Indian thorax phantom. Kramer et al. [137] discusses the variation in calibration factor with the volume of the lung and concludes that the counting efficiency increases with the reduction in the lung volume. The calibration factor of actinides for Phoswich detector using the Indian thorax voxel phantom was estimated out for the first time. This brings out the need for estimating the calibration factors based on Indian reference phantom which has to be developed.

4.3.7 Uncertainty in calibration factor due to positioning of the detector

Numerical simulation has been applied to investigate the best counting geometry and to quantify the uncertainty due to improper positioning of the detectors. The efficiencies of ^{241}Am present in the lungs for different detector positions over the chest of ICRP-AM were estimated. These values were used to estimate the overall uncertainties in the calibration factor for the detector placement. Simulations were carried out by displacing the detector independently along X(lateral displacement), Y (vertical displacement) and Z (displacement along the height) directions. The results normalized to the value at the standard position of measurement (x_0, y_0, z_0) are shown in Fig.4.10.

The variations in efficiencies along the three directions were fitted to polynomial functions given by,

$$\varepsilon(x) = \epsilon(x, y_0, z_0) = 0.003x^2 + 0.002 \times x + 0.99 \text{ (Lateral displacement)} \quad 4.2$$

$$\varepsilon(y) = \epsilon(x_0, y, z_0) = -0.054 \times y + 0.956 \text{ (Displacement from the chest surface)} \quad 4.3$$

$$\varepsilon(z) = \epsilon(x_0, y, z_0) = -0.004 \times z^2 - 0.009 \times z + 0.994 \text{ (Displacement along height)} \quad 4.4$$

The simulated results of ^{241}Am calibration factor of the Phoswich detector positioned at various point over the chest of the ICRP-AM is used to estimate the overall uncertainty in the calibration factor for the detector displacement.

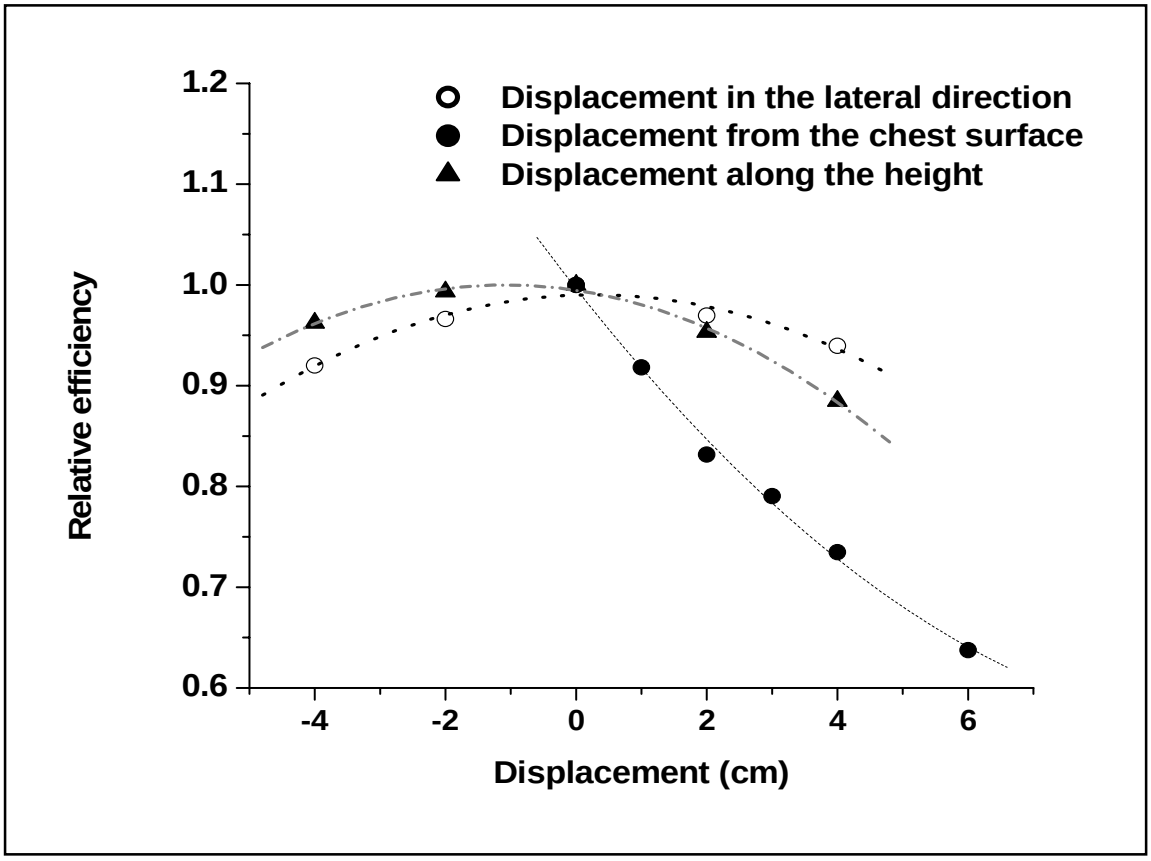


Fig.4.10 Efficiency variation with detector positioning

From the figure it is clear that the calibration factor is highest at(x_0, y_0, z_0) and this is the optimum position of the detector for the measurement of actinides. As the distance increases between the chest plate and the detector, the calibration factor follows inverse square law. For the movement along the height of the subject, when the detector is moved towards the head, the area of the lung viewed by the detector remains almost constant and therefore there is not much change in calibration factors, whereas when it is moved towards the legs (positive), the area of the lung viewed is reduced so the calibration factor gets decreased to a little greater extent compared to the opposite direction movement. As the detector is moved towards right,

the area of lungs viewed by the detector becomes reduced due to the obstacle from the heart, leading to the reduction in the calibration factors. Considering the present positioning system of lung monitor, the maximum expected variation along any of the axes could be in the range of ± 2 cm. This variation has been considered in the estimation of uncertainties. Table 4.11 gives the uncertainties in the calculated efficiency, in terms of Coefficients of variation.

This study clearly indicates that the displacement of detector by ± 2 cm laterally and along the height will vary the calibration factor only by 2%. The individual contribution to the calibration factor uncertainty due to positional inaccuracy along all the axes was calculated. Assuming statistical independence, the propagation of the uncertainty is estimated using the following equation [32].

Table 4.12 Coefficient of variation of the calculated calibration factor due to detector displacement in ^{241}Am lung counting using ICRP-AM

Parameter	Range of variation (cm)	Coefficient of variation (%)
X (lateral displacement)	±2	1.5
Y (vertical displacement	+2	9.2
Z (displacement along the height)	±2	2.0

$$\sigma^2\big(Eff(x,y,z)\big) = \sigma^2\big(Eff(x)\big) + \sigma^2\big(Eff(y)\big) + \sigma^2\big(Eff(z)\big) \quad 4.5$$

Then the total uncertainty calculated from the values listed in Table 4.12 is about 9.5%. As it can be seen, the movement of detector along Y axis results in a maximum error of 9% for 2 cm displacement. Study using two HPGe detectors placed over the right lung has also showed deviation in the same range [138]. Movement in the other axis results in errors less than 2%. Since, the present lung monitor (203 mm diameter) has a large area covering both the lungs completely, the variation of calibration factor resulting from the displacement is smaller in magnitude. For detectors with smaller areas these uncertainty values would be much higher and it is important to quantify it. In general, uncertainties upto 10% are

acceptable when compared to other uncertainties like CWT, organ shape and size etc., resulting in a measurement error (around 40%) [33], especially for low energy gamma photons.

4.3.8 *Calibration factor of High Energy gamma photon emitters present in the lungs*

Using the ICRP male voxel phantom the calibration factor of Phoswich (CsI crystal) for high energy photon emitters above 250 keV present in the lung was estimated by numerical

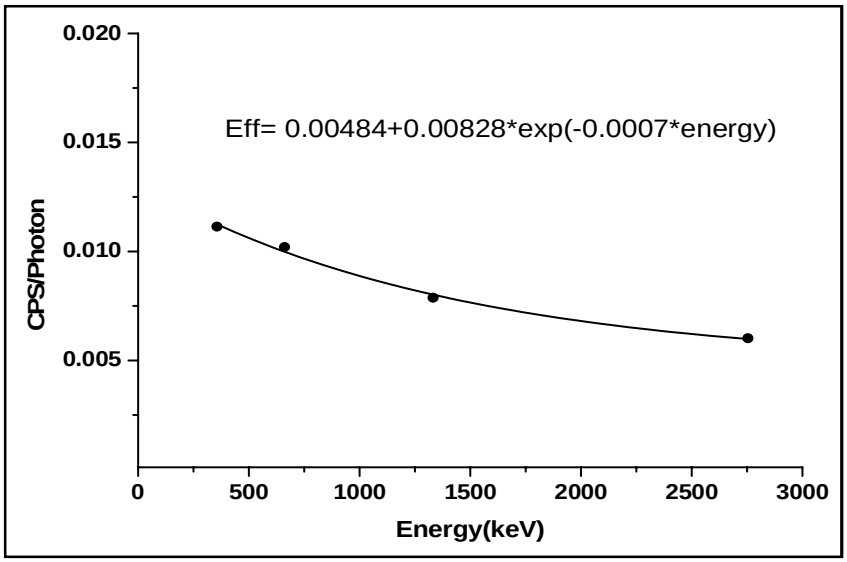


Fig.4.11 Efficiency curve of Phoswich detector for HEPs present in the lungs using ICRP-AM

simulation and is shown in Fig.4.11. These calibration factors are used for estimating HEP emitters, if any present, simultaneously during a lung monitoring.

4.4 Validation of the thyroid detector model

The thyroid detector was modeled with the neck region of the ICRP-AM. The distance between the detector and the neck is 21 cm. Calibration factor was simulated for ^{131}I using 364 keV photons. The simulated calibration factor of thyroid monitor for ^{131}I has a good agreement (<1% deviation) with the measured value. This proved the simulation expertise in modeling the flat field collimator apart from the scintillator detector and the modeling of Mathematical phantom (thyroid phantom).

4.5 Conclusion

The results of the simulation are broadly consistent with the results of the calibration measurements for all the in-vivo monitors indicating that mathematical phantoms could eventually complement physical phantoms in the calibration of in-vivo measurements for radionuclides. This instilled confidence in us for using the numerical calibration methods developed for the in-vivo monitors through this thesis work. Numerical calibration of wholebody counters (Shielded Chair and Shadow Shield Counter) using Masonite cut sheet phantom has not been reported in literature. The simulation study showed that the current distribution of 5 sources at mid thickness is equal to uniform distribution for wholebody counting systems. Comparison of the Masonite phantom and Indian adult BOMAB as a calibration tool for shielded chair counting system is unique. It was evident from the research work that the in-house built Masonite cut sheet phantom is equivalent to Indian BOMAB phantom as a calibration tool for shielded chair counting system for energies above 250 keV. The study to simulate the scanning geometry with multiple static detector positioning has shown that the optimum number of static detector location is equal to the quotient of the length scanned and the diameter of the detector. Numerical estimation of the Compton Scattering factors is very limited and their comparison with the experimental one is almost not reported in literature. Theoretical study of the calibration factors of LEPs and HEPs present in the lungs, liver, for male and female workers using single Phoswich detector is not reported. Estimation of calibration factors of Phoswich detector for LEPs using Indian voxel phantom is not reported in the literature. The simulation study carried out in the thesis work has helped in the estimation of the Indian reference specific calibration factor of ^{241}Am and ^{239}Pu and thus the uncertainty in the activity estimation. The close matching between the simulation results of uniform distribution of Natural Uranium lung set and the hole matrix lung set has shown that the distribution of 12 plugs in the lung set at middle of the lungs is

equal to the uniform distribution for single Phoswich counting geometry. The simulation study carried out for the Phoswhich system at IGCAR to estimate the variation of calibration factor due to change in the detector positioning has showed a maximum variation of <10% when the displacement of the detector is within 1 cm. The large variation in the efficiencies obtained using various phantoms proves the importance of quantifying the uncertainties in lung counting and confirms the requirement of personalized computational phantoms for lung monitor calibration.

The next chapter discusses the application of the numerical simulations to estimate the size correction factors for calibration factors and to reduce the bias in the estimated activity in the phantoms received as part of intercomparison exercise and also the development of voxel phantom from CT images and modeling of HPGe detectors.

Chapter-5

Application of numerical calibration to Intercomparison exercise

5.0 Introduction

This chapter discusses the application of numerical simulation to estimate the size dependent calibration factors and CSFs of shielded chair for different radionuclides in order to improve the accuracy of the estimated activity, to obtain calibration factor of thin NaI(Tl) detector for ^{241}Am present in the knee for which physical phantom is not available. It also discusses the comparison of the calibration factors and the CSFs between phantoms of two different sizes. Skull voxel phantom development from the CT images of physical skull phantom as part of European Intercomparison exercise – EURADOS is also described. Modeling of HPGe detector of various types (planar/coaxial), in different counting geometries for the estimation of calibration factors for ^{241}Am present in the skull, is also discussed. Apart from this, estimation of calibration factor for Phoswich for the detection of ^{241}Am in the skull is also mentioned.

5.1 Impact of the size of the phantom on calibration factors and CSFs

The IAEA BOMAB phantom, which represents an international adult male, is 184 cm tall and 105 kg in weight. The complete details of the phantom are provided in Table 5.1. The phantom was counted using the Shielded Chair counting system and the counting geometry is shown in Fig.5.1. The radionuclides identified in the phantom were ^{133}Ba, ^{137}Cs and ^{60}Co. The activity in the BOMAB phantom was estimated (Table 5.2) using the calibration factors and CSFs of the Masonite cut sheet phantom. A maximum underestimation of 23% [106] was observed in the activity which is attributed to differences in the dimensions and the weight

between the two phantoms [64]. The deviation is due to the self attenuation and change in the geometrical factors.

Table 5.1 Dimensions of the IAEA BOMAB phantom

S.No.	Part	Major axis (cm)	Minor axis (cm)	Height (cm)	Quantity
1	Head	20.5	15.5	21.5	1
2	Thorax	36.0	27.5	45.0	1
3	Pelvis	40.0	30.0	22.0	1
4	Neck	15.0	15.0	10.4	1
5	Thigh	16.0	16.0	43.5	2
6	Legs	13.5	13.5	44.0	2
7	Hands	10.5	10.5	72	2

Fig.5.1. SC with IAEA BOMAB phantom

To minimize the error, theoretical simulation was applied to get the size specific calibration factors and CSFs for different radionuclides identified in the IAEA BOMAB phantom. The IAEA BOMAB phantom was modeled along with the shielded chair counting system to estimate the calibration factors and the CSFs theoretically.

Table- 5.2 Comparison of actual activity of BOMAB and estimated activity using Masonite calibration factors and CSFs

Radionuclide	Activity (kBq)		deviation (%)
	Actual	Estimated	
		Masonite	Masonite
^{133}Ba	198.36	178	-10
^{137}Cs	251.81	195	-23
^{60}Co	135.41	129	-5

Table 5.3 Comparison of the calibration factors simulated using IAEA BOMAB phantom and that measured using Masonite phantom

Radionuclide	Calibration factors (CPS/kBq)	
	IAEA BOMAB (simulation)	Masonite (Measured)
^{133}Ba	2.00	3.61
^{137}Cs	1.972	3.01
^{60}Co*	4.289	5.20
Note: * Both 1173 and 1332 keV peak included		

Table 5.3 compares the Masonite and the IAEA BOMAB phantom calibration factors. From the table it is observed that the calibration factors of the IAEA BOMAB phantom is lesser than the measured values obtained using Masonite cut sheet phantom due to the above mentioned reasons. Similar trend is observed for the CSFs. These theoretically simulated values were used to re-estimate the activity and are provided in Table 5.4. The deviation in the activity has improved to 10% when the simulated calibration factors and CSFs of IAEA BOMAB phantom were used to estimate the activity as compared to -23% when the calibration factors and CSFs of Masonite cut sheet phantom was used. This study demonstrates the necessity of size dependent calibration factor and CSFs for the accurate estimation of the activity.

Table- 5.4 Comparison of actual and re-estimated activity of BOMAB

Radionuclide	Activity (kBq)			Deviation (%)	
	Actual	Estimated			
		Masonite	Simulation (IAEA BOMAB)	Masonite	IAEA BOMAB
^{133}Ba	198.36	178	182.7	-10	8
^{137}Cs	251.81	195	274.9	-23	9
^{60}Co	135.41	129	139.81	-5	3

5.2 *Numerical simulation of calibration factor for specific organ deposition*

Knee phantom is used for the quantification of bone seekers like ^{239}Pu, ^{241}Am present in the knee. Inhalation of a soluble, bone-seeking radioactive material gets translocated to bone. The bones contained in the knee phantom represent 10.7% of the total skeletal mass. The measured activity in the knee should be corrected for the total skeletal mass. The knee bone phantom contains the bones: fibulae, tibiae, femur and patella made out of tissue equivalent synthetic materials. These bones were labeled with ^{241}Am. A thin NaI(Tl) detector (3mm thick and 5 cm diameter), was used for the measurement of ^{241}Am activity in the knee phantom received as a part of IAEA intercomparison exercise. The counting geometry is shown in Fig.5.2. As calibration factor for knee measurements was not available due to non-availability of knee phantom in our laboratory, activity estimation could not be done. Hence, numerical simulations were applied to derive the calibration factor. For this the detector was modeled and validated using ^{241}Am point source. In order to estimate the activity in the knee phantom, the exact counting geometry used in the measurement (Fig.5.2) with ICRP-AM phantom was simulated numerically and the calibration factor of ^{241}Am was obtained. The longitudinal view of the simulated ICRP-AM knee along with the detector is shown in Fig.5.3. The spongiosa, cortical, medullar cavities of upper and lower half femur, tibia, fibula

and patellae were uniformly distributed with ^{241}Am source. The activity in the phantom was estimated from the measured photopeak counts using the simulated efficiency. The estimated activity is 27 kBq which is 10% lower than the true value (decay corrected). The deviation is because the physical knee phantom is made of synthetic bone structures, whereas ICRP-AM knee has the realistic bones.

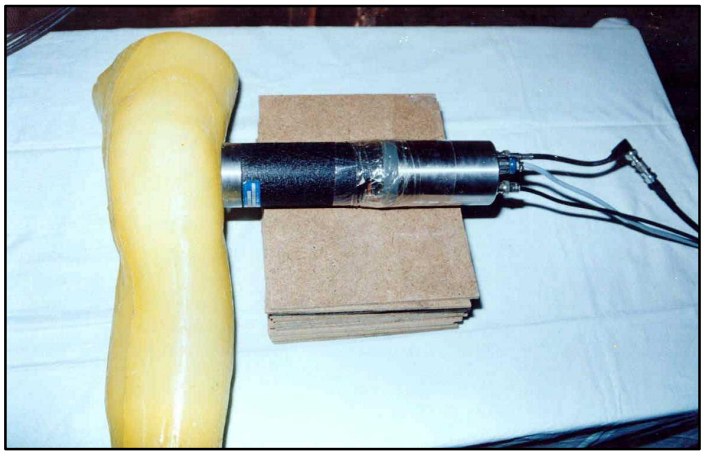


Fig.5.2 Measurement geometry for knee

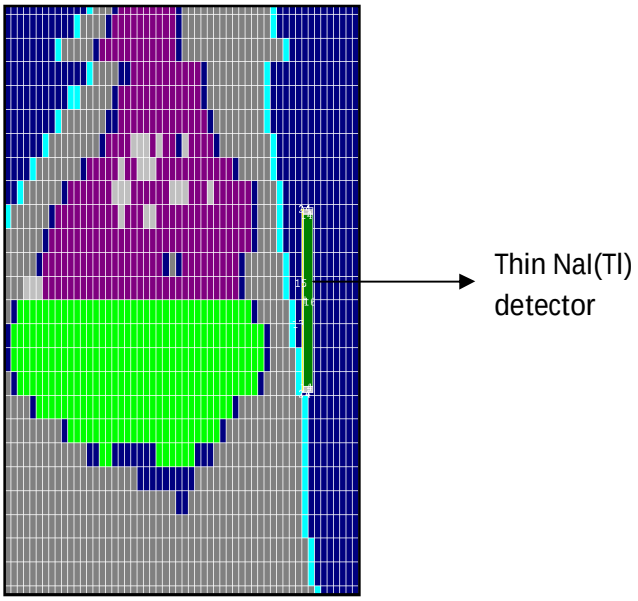


Fig.5.3 Longitudinal view of ICRP AM knee with thin NaI(Tl) detector

5.3 European intercomparison exercise - EURADOS

A prime requirement for numerical simulation of calibration factors for LEPs is the development of voxel phantoms. In order to develop a voxel phantom, the first requirement is CT or MRI image. EURADOS organized an intercomparison exercise on "Monte Carlo modeling for the in-vivo monitoring of ^{241}Am in skull phantom" using HPGe detectors. The EURADOS intercomparison exercise provided the participating laboratory with the CT image of different skull phantoms replicating human skull. This exercise was used to develop the expertise in constructing voxel phantom from the CT images and applying them to various in-vivo monitoring measurements. The simulations carried out so far were mainly with NaI based in-vivo monitors. But HPGe detectors are slowly replacing the NaI detectors for the in-vivo monitoring purposes. This exercise helped in providing an opportunity to model the HPGe based monitoring systems and validate the model. Apart from modeling HPGe detectors, simulation was also carried out to estimate the calibration factor of the Phoswich detector at IGCAR for the measurement of actinides in the skull. ^{241}Am, a bone seeking and long lived radionuclide, retention in the body is commonly detected and assessed by in-vivo gamma photon monitoring through measurement of activity in the lungs or skeleton or both. Estimates of the total skeleton content can be obtained by measuring the activity in some specific region of the body that can be shielded from the interference of activity in the rest of the body. Skull counting is a standard procedure for this purpose that requires the use of a realistic phantom to calibrate the counting systems. Skull, being 13% of the total skeleton by weight, represents a large bone mass with relatively little overlying soft tissue cover and is an ideal site for the in-vivo measurement of actinides. Realistic phantoms are required for the calibration of skull monitors. Production of these types of phantoms is difficult and also expensive. In such cases numerical simulation can be applied to estimate the efficiency.

The main goal of the exercise was to investigate the use of MC calibration in a complex situation. As a part of this exercise CT scan images of three skull phantoms with different complexity were provided. The simulation consists of modeling the voxel representation of these phantoms with HPGe detector of different configurations in different counting geometries.

5.3.1 Phantoms modeled

CANDU Senior Republic (CSR) Phantom: It is an artificial phantom made of plaster and polyurethane with surface distribution of the activity (^{241}Am). True source of the physical phantom is a net of droplets with ^{241}Am on the outer and the inner surface. Total activity of physical phantom is 1007 Bq. Fig.5.4 shows the CSR phantom along with the HPGe detector. The composition and densities used to model this phantom are summarized in Table 5.5.

Table 5.5 Composition in mass fraction and tissue density used in simulations

Element	Polyurethane	Plaster of Paris
Hydrogen	9.00	----
Carbon	64.4	----
Nitrogen	6.00	----
Oxygen	20.6	55.8
Calcium	----	23.3
Sulphur	----	21.9
Density (g/cc)	0.36[a]	1.82
	1.05[a]	
	1.10[a]	

[a] simulation of soft tissue, hard and soft bone

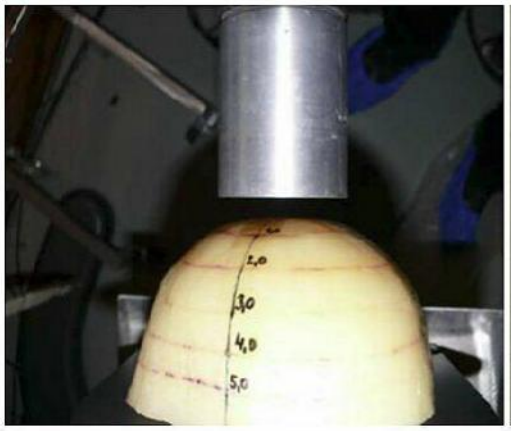


Fig.5.4 Counting geometry of CSR phantom

Bfs phantom (Bundesamt fur strahlenschutz) phantom: The Bfs phantom is a human skull with a uniform distribution of 2.4 kBq and 3.0 kBq of ^{241}Am on the inner and outer bone surfaces respectively (Fig.5.5). The skull is filled with tissue-equivalent wax in the form of small spheroids and covered with tissue-equivalent wax [139].

Fig.5.5 BFS phantom and the CT image of one slice

Bone Phantom Americium(BPAM) - 001 skull phantom: The BPAM - 001 phantom is a part of the United States Transuranium and Uranium Registry Americium Bone Phantoms and consists of a part of the skeleton from USTUR Case No 102 (Fig.5.6). The skull phantom consists of ^{241}Am contaminated bones on the left half and non-contaminated bone, on other half.^{241}Am activity in the phantom is 621 ± 8 Bq. The skull is cast in ICRU muscle equivalent tissue [139]. Fig.5.6 shows the CT image of a single slice of BPAM phantom.

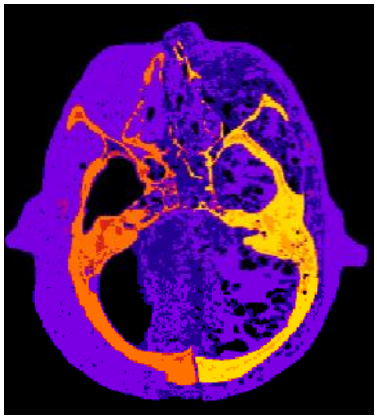


Fig.5.6 CT image of one of the slices of the BPAM phantom

Extracting data from CT images: The CT images were processed and the data pertaining to the organ location were extracted from these images slice wise and stored in separate files. There were totally around 250 files for each slices. Each file contained around one million voxels defined in it. Reading this data and converting them into MCNP input file manually would be a time consuming process and prone for errors. In order to overcome these difficulties a FORTRAN program was written to sequentially read these files and generate a MCNP input file.

5.3.2 Detectors modeled

Planar HPGe detector: The crystal is germanium of 1 cm thickness and 5 cm diameter. The entrance window is 0.11cm carbon epoxy resin. There is a 0.39 cm vacuum gap between the window and the detector crystal. Full details are given in Table 5.6. The composition of carbon epoxy given by the coordinator is 7.3% H, 83.4% C and 9.3 % O.

Table 5.6 Specification of planar HPGe detector of task 1

Structure	Composition	Density (g/cc)	Dimension (cm)
Crystal	Germanium	5.323	Diameter:5 Thickness: 1
Entrance window	Carbon epoxy	1.4198	Diameter: 6.7 Thickness: 0.1
Canning	Al	2.699	Thickness: side 0.3 Bottom: 1

LO-AX HPGe detector: The crystal is germanium of 3.05 cm thickness and 7 cm diameter. The entrance window is 0.076 cm carbon epoxy. A 0.4 cm vacuum gap is present between the window and the detector crystal. Full details are given in Table 5.7.

Table 5.7 Specification of coaxial HPGe detector of task 2

Structure	Composition	Density (g/cc)	Dimension (cm)
Crystal	Germanium	5.32	Diameter:7 Thickness: 3.05
Vacuum			Thickness: 0.4
Entrance window (Carbon epoxy)	C (83.4%), H(7.3%), O(9.3%)	1.42	Thickness: 0.076
* mounting cup	Al	8.96	Thickness: side 0.15 Bottom: 1
*end cap	Al	8.96	0.15 thick

* Data obtained from the datasheet of the given model number

Monte Carlo code is used to model the detectors, phantoms and simulate the bone contamination, the radiation transport and the detection process. The detectors were modeled in great detail based on either the data provided by the organizer or the data supplied by the manufacturer. In the entire exercise ^{241}Am spectral response was generated with the energies and the yield factors [140] provided by the organizer using PULSE HEIGHT tally. Detection efficiencies were obtained based on the area under 59.54 keV photopeak. The Compton bins surrounding the photopeak were also considered for the calculation of the calibration factors.

5.3.3 First task: Planar HPGe detector

This task consists of modeling a planar HPGe detector coaxially over the top of CSR phantom at a distance of 1cm. In this task, all the information needed for generating the MC input file regarding detector and the phantom were provided. The positioning coordinates of the detector and the phantom were provided. The detector was modeled based on the details given in Table 5.6 [141]. The modeled counting geometry is shown in Fig.5.7. The GEB factors were provided by the organizer. Totally 54411 source voxels were defined. There are

31 numbers of energies in the ^{241}Am spectrum. 3X10^{8} histories were run which translate to nearly 178 photons per voxel per energy, ensuring a statistical error of <1% in each energy bin. Fig.5.8 gives the comparison between the simulated and the coordinator measured spectrum. A good agreement is seen between both the spectra.

The calibration factor was determined from the simulated spectrum as 4.89 CPS/kBq. The

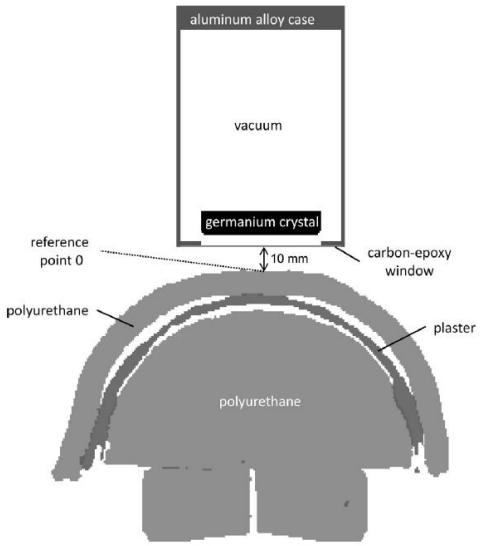


Fig.5.7 Numerical reconstruction of the counting geometry for task 1.

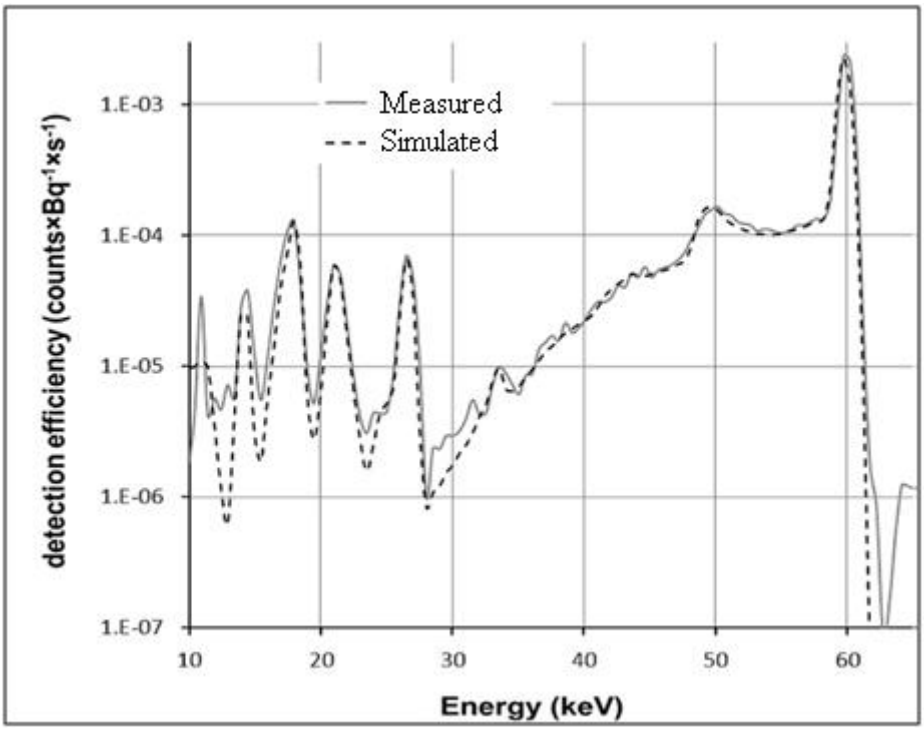


Fig.5.8 Comparison of simulated and organizer measured spectrum of task 1

coordinators' measured calibration factor is 5.5 CPS/kBq. The deviation of about 11% [142] could be due to the error in description of the positioning of detector with respect to the phantom and in the description of the finer details of the detector. It may be noted that the geometric mean of the simulated efficiencies of the 16 participants was 4.93 CPS/kBq.

5.3.4 Second task: LOAX HPGe detector

The second task had different cases of modeling the three phantoms with different counting geometries. In this task the model of the detector was provided along with radius, thickness, window thickness and window material, which are given in Table 5.7. The participant had to infer the other information like detector mounting cup and the end cap material/ thickness etc. from the datasheet of the detector. The participant had to decide from the detector datasheet the important parameters which will affect the calibration factor and optimize them. The GEB factors were estimated from the given FWHM values.

In order to validate the modeling of the detector spectrum of ^{241}Am point source was simulated and compared with measured spectrum provided by the organizers. The obtained spectrum matched well with the spectrum given by the organizer in terms of peak shape, centroid and peak area (Fig.5.9).The calibration factor for 59.54 keV was calculated and compared with the measured one. The comparison showed a deviation of 3.5%.

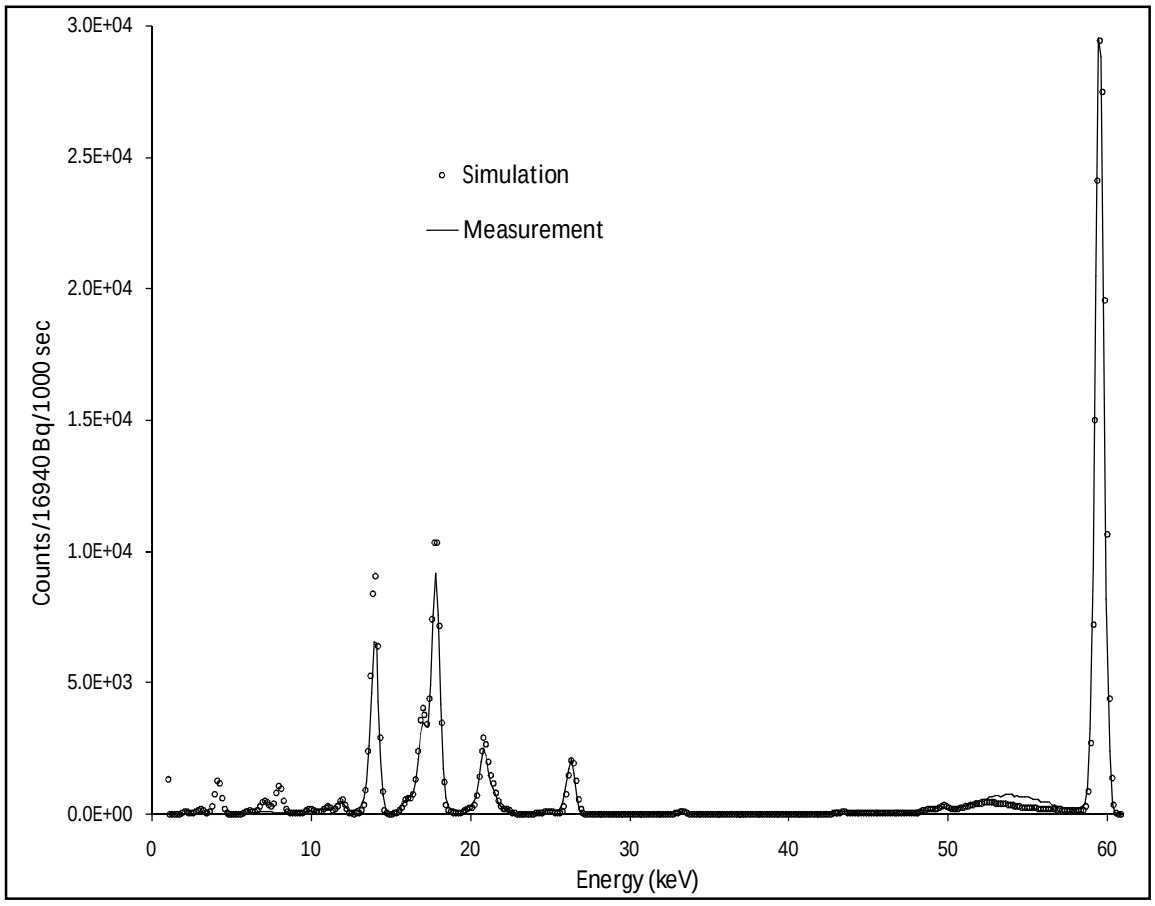


Fig.5.9 Comparison of simulated and measured spectrum of ^{241}Am point source

This close matching of the measured and simulated calibration factors ensured that modeling of the detector was accurate. This validated model was used for simulating the efficiencies for the given cases of 2nd task.

(1) In the first case the CSR phantom modeled in Task 1 was used as such by replacing the planar detector with the LOAX HPGe detector

(2) The second case involved modeling of LOAX detector with BFS phantom in the counting geometry shown in Fig.5.10. The detector axis was tilted by 43˚ with respect to Y axis to model this geometry. The exact coordinates of the detector positioning was

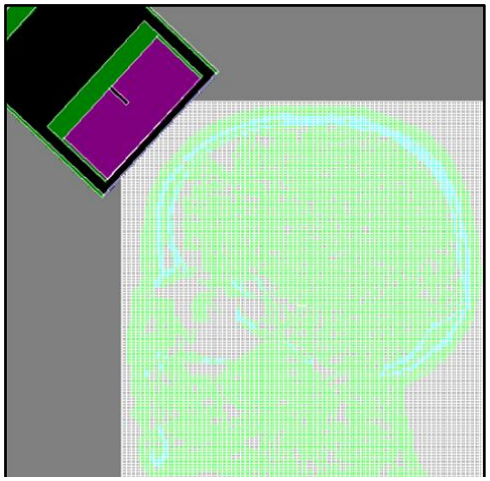


Fig.5.10 Numerical reconstruction of BFS phantom in task 2

inferred from the distance of the detector from the phantom. Comparison of the simulated and the measured spectra is shown in Fig. 5.11.

(3) In the third case the detector was placed exactly as in the first case over the BPAM phantom.

For task 2 the measured efficiencies were also calculated from the spectra provided by the organizer. Comparison of the simulated and measured efficiencies showed a maximum deviation of 15%. The results are provided in Table 5.8

The calibration factor in case 1 of this task was 1.75 times higher than that of task 1 and this is due to the difference in the surface area between the two detectors. Surface area of LOAX detector is 1.95 times higher than the planar detector.

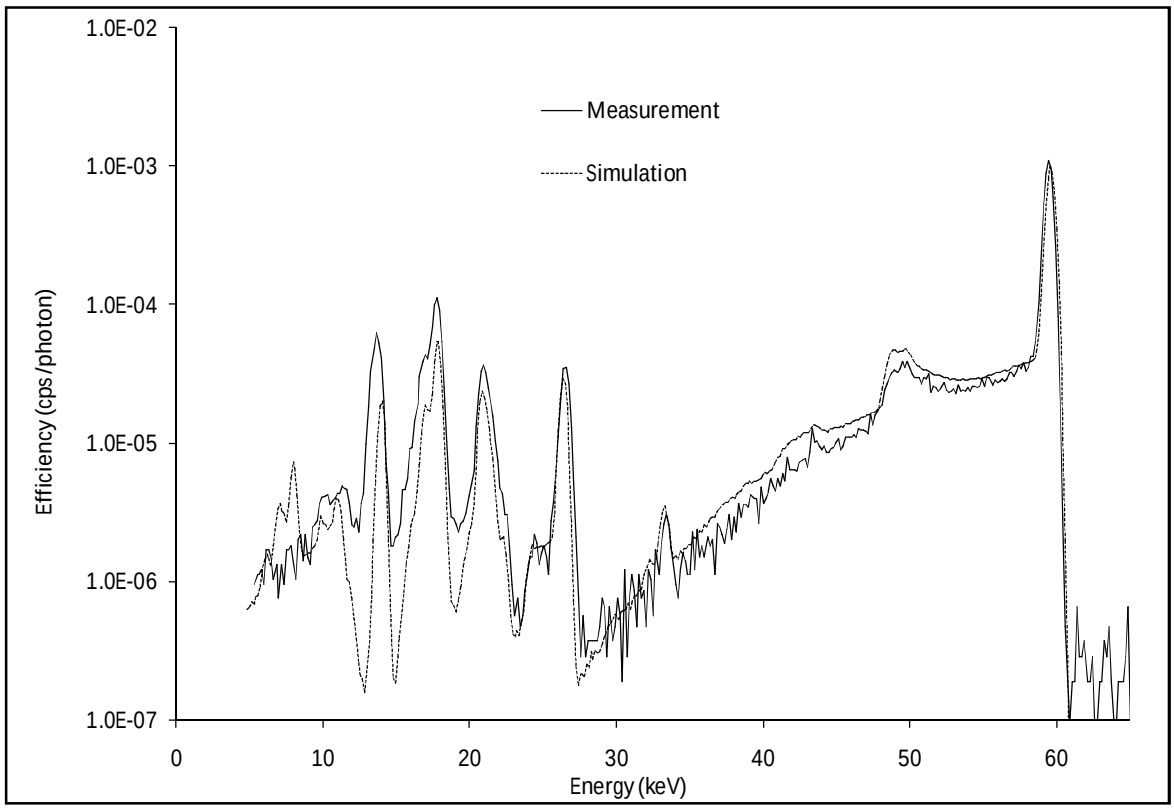


Fig.5.11 Comparison of simulated and measured spectrum (organizer) of BFS phantom in Task 2

Table 5.8 Comparison of the simulated and measured calibration factors

Task	Phantom	Detector	Calibration factor (CPS/kBq)		
			Simulated	**Measured**	% Dev*
Task 1	CSR	Planar HPGe	4.89	5.5	-11
	CSR	*Phoswich*	*41*	------	
Task 2	CSR	LOAX HPGe	8.55	9.6	-11
	BFS	LOAX HPGe	4.66	4.9	14
	BPAM	LOAX HPGe	4.68	4.1	-4
	BFS	*Phoswich*	*30*	-----	
Task 3	BFS	4 LOAX HPGe	28	-----	

Note :* Dev : deviation

5.3.5 Third task: Multiple LOAX HPGe detectors

In the third task four coaxial HPGe detectors were positioned around the phantom (Fig.5.12). One each on the top, left, right and back of the BFS phantom. This configuration was chosen as it is convenient for placing and also can be easily reproduced. All the detectors were tallied simultaneously. The individual detector's calibration factor provided in Table5.9 were added together to get the total efficiency. The total calibration factor was 28 CPS/kBq.

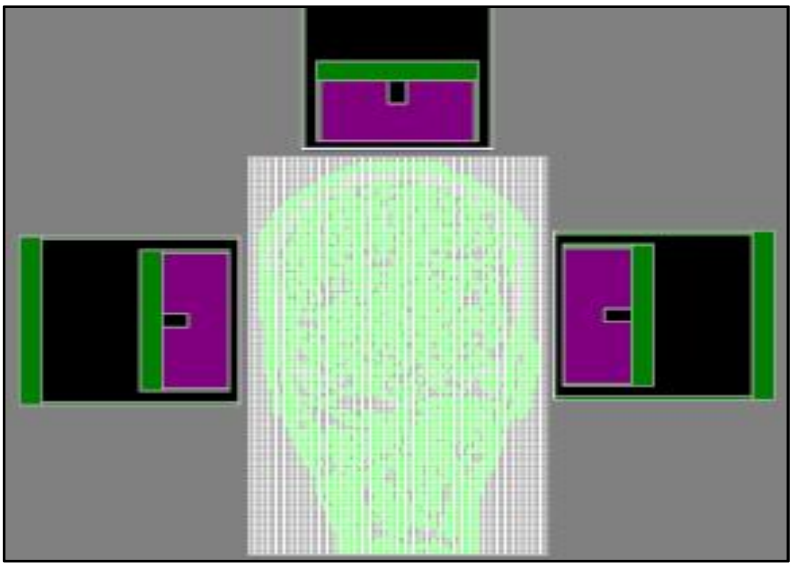


Fig.5.12 Counting geometry for task 3 with BFS phantom (top and side detectors)

Table 5.9 Detector position and the calibration factor for BFS phantom in task 3

Detector	Efficiency(CPS/kBq)
1 (Top)	7.73
2(left)	6.79
3(Right)	6.67
4(back)	6.85
Total	28.0

The table shows that the detector placed on the top of the skull phantom has the maximum efficiency.

5.3.6 Efficiency for Phoswich detector

In addition to obtaining calibration factors of HPGe detectors for different configuration and different geometries for different skull phantoms, the exercise was also gainfully used to estimate the calibration factor of Phoswich detector for ^{241}Am in the skull. The Phoswich detector described in chapter 2 was modeled coaxially 1cm above the CSR and BFS phantoms and the calibration factors were simulated. The counting geometry with CSR is shown in Fig. 5.13. Comparison of the Phoswich and the HPGe spectra of the CSR phantom

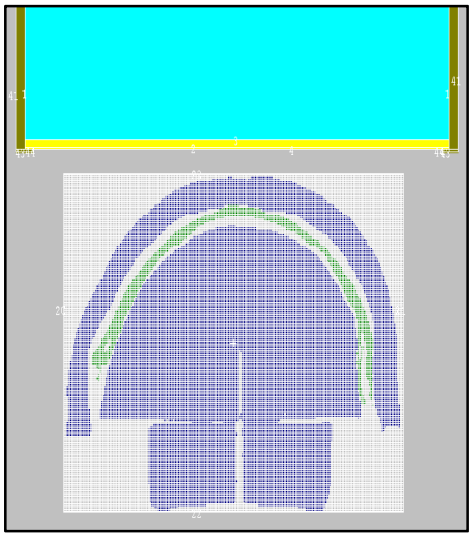


Fig.5.13 Phoswich detector with CSR phantom

are given in Fig.5.14. The calibration factor is 41CPS/kBq, which is eight times higher than that of planar HPGe. This is due to the difference in the area of the two detectors which is

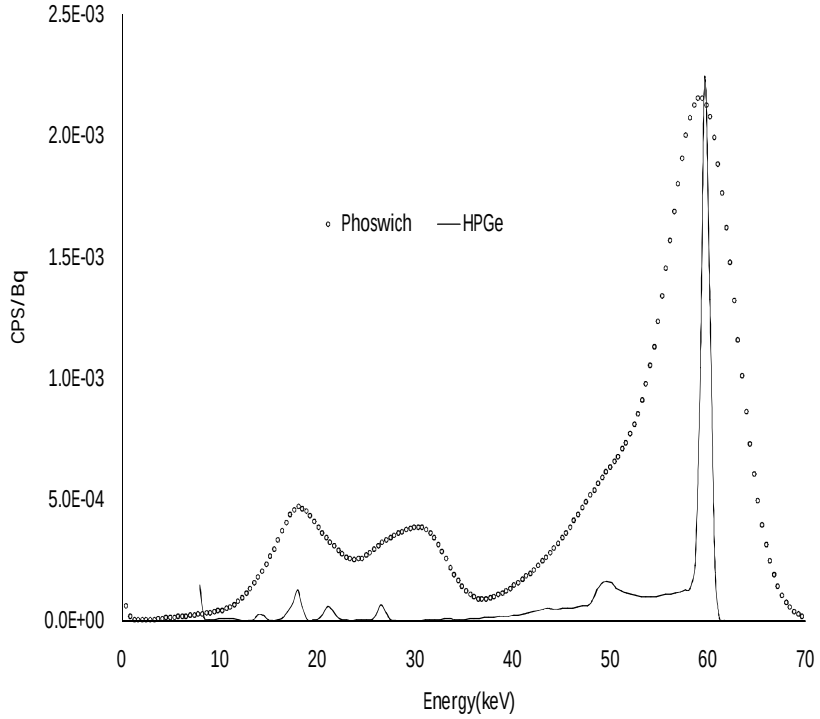


Fig.5.14 Comparison of simulated spectrum of Phoswich and planar HPGe

about 8. The calibration factor is twice the total of task 3. This shows that the Phoswich is more efficient than four LOAX HPGe detectors and can be used for estimating ^{241}Am in the skull instead of HPGe detector. Similarly the calibration factor was also found to be 30.5 CPS/kBq for BFS phantom.

As part of this exercise expertise was gained in the extraction of Data from CT images and converting them into voxel phantom. This exercise and its results gave a confidence in the MCNP simulation of skull voxel phantoms in ^{241}Am measurements using HPGe based detectors. This intercomparison exercise helped to compare the simulation and measurement results of the same phantoms.

5.4 Conclusion:

Size dependent calibration factors and CSFs were estimated for shielded chair counting system using the IAEA BOMAB phantom and the accuracy in the activity estimation was improved. Numerical simulation was applied to estimate the calibration factors for knee phantom where physical phantom calibration was not there. Participation in the EURADOS intercomparison exercise, helped in gaining expertise in developing voxel phantom from the CT images and also in the modeling of HPGe detectors. The results of this exercise gave a confidence on the numerical calibration methodology developed in this research work. As an additional outcome the calibration factor of Phoswich detector for ^{241}Am present in the skull was also obtained.

.

Chapter-6

Conclusion and future directions

In-vivo monitoring comprises of a variety of monitoring systems for the detection and quantification of various radionuclides that are likely to be present inside the occupational worker. The activity could be distributed in the wholebody or in selected organs of the worker dictating the need for various in-vivo monitoring systems and calibration phantoms. As these monitors are to be calibrated with appropriate phantoms, a large variety of physical phantoms are fabricated for this purpose. But most of them represent a standard man belonging to western or Asian population. There are significant differences in the anatomical and physiological characteristics of the Indian population when compared with the western population or even the Asiatic population. These differences result in large uncertainties in the calibration factors leading to erroneous assessment of the internal contamination and the consequent dose. The error is quite significant especially while quantifying actinides which emit low energy X rays/gamma photons. Hence physical phantoms representing Indian standard man were felt necessary and a few phantoms for HEP measurements have been developed. These phantoms are used for obtaining calibration factors for standard geometry adopted and with a few selected set of radionuclides. These phantoms still represent the standard reference man and have large limitation in terms of their use in experiments to study the influence of human morphology, use of multiple sources, variation in source distribution etc. The application of numerical phantoms for the calibration of in-vivo monitoring systems, have gained momentum and extensive studies have been carried out elsewhere for the validation of their use.

Though extensive work has been carried out in several leading laboratories worldwide, development of similar calibration procedures and their validation is essential for every

laboratory since the detector used, the counting geometry adopted, phantoms used etc. are specific to each laboratory. Towards this, numerical technique is developed for the calibration of in-vivo monitors like shielded chair counter, shadow shield counter, Phoswich based lung monitor, thyroid monitor etc., used in IGCAR for the measurement of different radionuclides distributed in different anatomical regions using Indian reference phantoms. The important findings of this research work are as follows:

6.1. Important findings of this thesis work

1. Numerical simulation of in-vivo monitors: As a first step the in-vivo monitoring systems needs to be modeled along with the reference phantom for establishing the theoretical calibration factors. This was carried out for the above mentioned in-vivo monitors along with the virtual models of the physical phantom using MCNP. The simulations were also benchmarked by comparing the theoretical predictions with relevant experimental results. The agreement is within 5%.

2. Estimation of calibration factors for SSC and SC: Numerical simulation of calibration factors of wholebody counters using Masonite phantom and Indian BOMAB phantom have not been reported in the literature. Hence theoretical simulations of SSC and SC were carried out to generate efficiency curves from 250 keV to1500 keV. The simulation was also used to estimate calibration factors for energies upto 3 MeV. Numerical simulation of SC with in-house built Masonite cut sheet phantom with an assumption of uniform source distribution resulted in almost the same calibration factor as simulation and experiment with 5 sources at mid thickness of each block. The results corroborated the assumption that uniform distribution can be simulated with multiple point sources.

3. Estimation of organ specific calibration factors: Efficiencies were estimated for SC using BOMAB phantom for both uniform wholebody distribution and partial body distribution. The study revealed that the use of calibration factors corresponding to wholebody distribution to estimate partial body activity could result in (a) an overestimation of the activity by a factor of 1.48 to 1.72 in the thorax region for the energy range 600 to 1332 keV, (b) an underestimation of the activity of pelvis by a factor about 0.47 to 0.6 for the same energy range and (c) an overestimation of the ^{131}I activity in the thyroid region by a factor of 1.35 for the SC. The magnitude of these underestimations and overestimations varies with individual geometry. These results will improve the accuracy in the partial body activity estimation using wholebody monitors in the absence of partial body monitors. To establish this experimentally one needs multiple physical phantoms impregnated with different radionuclides, which is practically difficult.

4. Theoretical estimation of CSFs: CSFs are important during the measurement of internal contamination involving multiple radionuclides having different energies using NaI(Tl) based in-vivo monitors. In general, estimation of the activities in the low energy region will be highly influenced by the CSFs. Hence CSFs in different low energy regions due to various high energy photon emitters were simulated for SC and compared with the measured values. Literature on the theoretical estimation of CSFs is scanty and its comparison with the measurement carried out in the present study is unique. The ^{137}Cs activity in the IAEA phantom, which has ^{60}Co activity also, with and without the CSF of ^{60}Co are 275 kBq and 333 kBq respectively. An overestimation of the ^{137}Cs activity by 21% is found when the CSF is not used.

5. Comparison of phantoms by numerical simulation: The simulated calibration factors and CSFs of SC with Masonite and Indian BOMAB phantom agreed within 10%. These results showed that the Masonite cut sheet phantom is a good substitute for Indian BOMAB phantom in the high energy regions (>200 keV). The Masonite cut sheet phantom is easier to fabricate from commonly available raw material with less cost compared to BOMAB phantom. Standard disc sources can be used with the Masonite cut sheet phantom for calibration.

6. The calibration factor of the IAEA BOMAB phantom which was taller than the Indian adult BOMAB phantom was simulated for different energies. There was a decrease in the calibration factors ranging from 20% to 37% depending on the energy.

7. Simulation of SSC: The theoretical simulation of shadow shield counter scanning mode using static detector at various positions has shown that the sequential displacement of the static detector by a distance equal to the diameter of the detector could simulate the scanning mode calibration factor for energies upto 1500 keV with the agreement of ±12%.

8. Theoretical calibration of Phoswich detectors: Theoretical simulation studies with Phoswich system are very limited and those which are available are for a twin Phoswich system. Studies for single Phoswich detector have not been attempted fully. Calibration factor for ^{239}Pu present in the lungs using Phoswich measurements with LLNL phantom having TP was numerically simulated and was found to be 75 CPS/MBq. This result is very valuable for our in-vivo monitoring as the calibration factor could not be estimated experimentally due to the non-availability of ^{239}Pu loaded lung set nationally. Theoretically simulated calibration factor of Natural Uranium using LLNL voxel phantom with uniform distribution and the measured values obtained using LLNL

phantom with the hole matrix lung set loaded with 6 natural uranium sources showed a remarkable agreement within 2%. The result supported the assumption that distribution of 6 source plugs in each lung could simulate nearly the uniform distribution.

9. Optimization of detector position in Phoswich based lung monitors: The influence of detector position on the calibration factor of Phoswich detector for lung measurement was studied for ^{241}Am theoretically. The result indicated that the detector mounted centrally over the supine subject is the optimised one, resulting in the maximum efficiency.

10. Efficiency for lung activity estimation: Efficiency curve for lung activity estimation using Phoswich detector was established for both LEP and HEP theoretically using ICRP-AM phantom. Calibration factors for actinides (^{239}Pu-0.0152 CPS/kBq and ^{241}Am-9.04 CPS/kBq) using Phoswich detector for female subjects, for which no physical phantom exists till today for measurement, has been successfully estimated in this thesis using ICRP-AF.

11. Estimation of calibration factor for Phoswich detector using Indian voxel phantom - Numerical calibration of lung monitors based on Indian reference man is not found in literature. Preliminary Indian thorax voxel phantom was developed by proportionally scaling the ICRP-AM with the dimension of the thorax of the Indian adult man. The calibration factors of Phoswich detector for ^{241}Am and ^{239}Pu present in the lungs was estimated using the scaled Indian adult thorax voxel phantom. The calibration factor of ^{241}Am is 110% higher than that obtained using ICRP-AM. This is due to the reduction in the chest wall thickness and lung size. This result substantiates the need for Indian reference phantom to reduce the uncertainty in the dose estimation.

12. Efficiency for skull phantom: As ^{241}Am loaded skull phantom is not commercially available, the calibration factor for ^{241}Am present in the skull for Phoswich measurements was theoretically estimated and found to be in the range of 0.03 to 0.041 CPS/Bq.

The dose estimated from an in-vivo measurement can only be as accurate as the result obtained from the measurements which depends on the accuracy of calibration factors. Any uncertainty in the calibration factor results in either the overestimation or underestimation of the internal dose. Accordingly, it is to be highlighted that all these studies are of immense practical significance in the development of more accurate quantification of the internal exposure. Apart from the important task of aiding in establishing personalized, radionuclide specific calibration factors for the in-vivo monitoring systems for standard and non-standard geometries, this comprehensive and first of its kind study in the centre, has been pivotal in establishing a robust in-vivo monitoring program at IGCAR.

6.2. Areas that require more numerical simulation and future directions

It is well known that modeling, simulation, calibration and experimentation are the key to successful exploitation of the current techniques and technologies for robust and comprehensive in-vivo monitoring systems. Several in-vivo monitoring laboratories around the globe have been carrying out research and development work to meet ever increasing demands and the requirements. But the very fact that these studies are laboratory and subject specific, undertaking such work is mandatory for every laboratory. The focused studies have clearly validated procedures, techniques, provided calibration factors and greater insights. But there is still scope for further R & D in quest for refining the limits of detectability. Some of the possible areas which can be explored include:

1. Variation of calibration factors of the Shielded chair counting system with Phantom size: The calibration factor of the shielded chair counting system will vary with the human morphology especially height and weight. In order to minimize the error in the estimation of activity using Shielded chair counting system during routine monitoring of occupational radiation workers, individual specific calibration factor is important. This is difficult to determine experimentally with the help of Physical phantoms and hence theoretical determination of variation of calibration factor with height and weight of individuals gains importance. Using the validated shielded chair and the BOMAB phantom model, the size correction factors for the calibration factor and the CSFs of different energies can be simulated.

2. Development of realistic Indian voxel phantom from MRI/CT images: The Indian voxel phantom was developed in this study by proportionally scaling down the ICRP adult male phantom. Comparison of calibration factors of this scaled down Indian voxel phantom and ICRP adult male phantom showed a variation of around 110% for ^{241}Am. Hence more realistic voxel phantoms generated from the MRI/CT images of Indian population will improve the robustness and accuracy of in-vivo monitoring in the low energy region.

3. Quantification of the interference from the ribs: Lung measurement of actinides in cases under long term follow up and multiple intakes could result in serious errors due to the interference of activity that is redistributed in the ribs (skeleton). The magnitude of the interference depends on the elapsed time (redistribution of actinides in ribs depends on bio-kinetic model), counting geometry adopted and the choice of the detector. The validated Phoswich detector with the Indian voxel phantom can be used to quantify this interference and to estimate the activity with less uncertainty.

4. Efficiency for non-standard geometry: Monitoring of subjects with higher radioactivity levels, (which could occur under emergency or accidental conditions), in the standard geometry, both in SC with sitting posture as well as in SSC with supine geometry would result in erroneous values due to the larger dead time of the detectors. The error due to this increased dead time can be minimized by keeping the subjects at a distance away from the detector, a non-standard geometry for which calibration factors are not available. Calibration factor for such geometries cannot be determined experimentally and resorting to theoretical estimation of calibration factors is an alternative.

REFERENCES

[1] Atomic Energy Regulatory Board. Radiation protection for nuclear facilities. AERB Safety Manual No. AERB/NF/SM/0-2 -Rev.4(2005).

[2] International Atomic Energy Agency. Methods for Assessing Occupational Radiation Doses due to Intakes of Radionuclides. Safety Report series No. 37 (2004).

[3] International Commission on Radiological Protection. Compendium of Dose Coefficients based on ICRP publication 60. Annals of ICRP 41,S-1, (2012).

[4] National Council for Radiation Protection and Measurements. Development of a biokinetic model for radionuclide contaminated wounds and procedures for their assessment dosimetry and treatment. NCRP report 156 NCRP(2006).

[5] International Commission on Radiological Protection. Human Respiratory tract model for radiological protection. ICRP publication 66. Annals of ICRP 24(1-3) Pergamon press (1994).

[6] Ross Muller. Deadly glow: The radium dial worker tragedy. American Public Health Association (1999).

[7] Schlunt, Baker and Flinn. The detection and estimation of Radium and Mesothorium in living persons. Journal of Radiology and Radiation therapy. 21 (1929).

[8] Evans R.D. Radium Poisoning. II. The quantitative determination of the Radium content and Radium elimination rate of living persons. American Journal of Roentgenology and Radium therapy, 37, (1937), 368-378.

[9] Sievert R.M. Measurements of gamma radiation from the human body. Arkiv for Fysik. 3(1951),337-344.

[10] Marinelli L.D., Miller C.E., Gustafson P.F., Rowland R.E. The quantitative determination of gamma-ray emitting elements in living persons. The American Journal of Roentgenology and Radium therapy and nuclear medicine, 73(4), (1955), 661- 671.

[11] Burch P. R. J. Whole body counting with plastic scintillators. Proceedings of University of New Mexico Conference on Organic Scintillation Detectors, 15- 17 August, 1960. Albuquereue, New Mexico (1960).

[12] Palmer H. E. and Roesch W. C. A shadow shield wholebody counter. Health Physics,11, (1965), 1213–1219.

[13] Pike R.A. and Ramsden D. Proportional counters for measuring Plutonium-239 "*in-vivo*". The choice of counting gas and the use of pulse shape discrimination techniques. Atomic Energy Establishment Winfrith Report,(1969), AEEW-M526.

[14] Ishihara T., Tinuma T.A., Tanaka E. and Yashiro S. Plutonium lung monitor using a thin NaI(Tl) crystal of large area. Health Physics 17, (1969), 669-678.

[15] Laurer G.R and Eisenbud M. A multicrystal detection system for localization and measurement of photon emitters without external collimation. Nuclear instruments and methods, 140, (1977), 481-487.

[16] Jeans Louis MGenicot. Room-temperature semiconductor detectors for *in-vivo* monitoring of internal contamination. Environmental Health Perspectives, 105,S6, (1998), 1423-1426.

[17] International Atomic Energy Agency. Directory of wholebody radioactivity monitors (low activity levels) 1964.

[18] Sharma R.C.,Somasundaram S., Kotrappa P., Haridasan T.K., Surendran T., Kapur D.K., Krishnamachari G., Bhanti D.P., Pimpale N.S. Assessment of Chest Burdens of Plutonium. IAEA-SR-6/50 (1976).

[19] Health Physics Society. Specifications for the Bottle Manikin absorber phantom. An American National Standard. ANSI/HPS N13.35. American National Standards Institute (1999).

[20] Kramer, Gary H.; Hauck, Barry M. The sliced Bomab phantom: a new variant for intercomparison. Health Physics, 90(2), (2006), 161-166.

[21] International Atomic Energy Agency. Direct Methods for measuring radionuclides in the Human Body. IAEA Safety Series-114(1996).

[22] Vanreenen R., Loiter M.G., Minnaar P.C., and Iturralde. M. Calibration and measurement of Potassium-40 with a wholebody counter, South African Medical Journal, 48, (1974), 2482.

[23] Dean P.N. Development of an anthropomorphic phantom for the calibration of external detectors for the *in-vivo* measurement of plutonium. Proceedings of the workshop on measurements of heavy elements *in-vivo*. Battelle Seattle Research Center, Seattle, WA 24-25 June (1976).

[24] Griffith R.V., Anderson A.L. and. Anderson S.W. Fabrication of a set of Torso phantom for calibration of transuranic nuclide lung counting facilities. 6th International Congress of IRPA, Berlin, West Germany, May 7-12, 1984.

[25] Sandra F., Synder and Richard J Traubis. The Livermore phantom history and supplementations Health Physics, 98(3), 2010.

[26] International Atomic Energy Agency. Inter calibration of in-vivo counting systems using an Asian phantom. Results of a co-ordinate research project 1996–1998, (2003), IAEA TECDOC-1332.

[27] Gualdrini G., Battisti P., Biagini R., Felice P., Fazio P. Development and characterization of a head calibration phantom for *in-vivo* measurement of the actinides. Applied Radiation Isotopes. 53(1-2), (2000), 387-393.

[28] Spitz H.B. and Lodwick J. Design, fabrication and evaluation of a new calibration phantom for in-vivo measurement of bone seeking radionuclides. Radiation Protection Dosimetry, 89 (3-4), (2000), 275-282.

[29] Kramer G.H. and Burns L. C. Effect of radionuclide distributions on lung counting efficiency. Radiation Protection dosimetry, 61(1-3), (1995), 145-147.

[30] Lamart S., Pierrat N., Rateau S., Rouit E., Carlan L De, et al. Application of voxel phantoms to study the influence of the heterogeneous distribution of actinides in lungs on *in-vivo* counting using animal experiments. Radioprotection, 42 (1), (2007), 75-86.

[31] Lopez-Ponte M.A. and Navarro T. Sensitivity of a low energy Ge detector system for *in-vivo* monitoring in the framework of ICRP 78 applications. Radiation Protection Dosimetry, 105(1-4), (2003), 477-482.

[32] Moraleda M., Gomez-Ros J.M., Lopez M.A., Navarro T., Navarro J.F. A MCNP-based calibration method and a voxel phantom for *in-vivo* monitoring of ^{241}Am in skull. Nuclear Instruments and Methods in Physics Research, A 526,(2004), 551-559.

[33] International Safety Organization Radiation Protection. Dose assessment for the monitoring of workers for internal radiation. ISO 27048 (2011).

[34] Franck D., Borissov N., De Carlan L., Pierrat N., Genicot J.L. and Etherington G. Application of Monte Carlo calculations to calibration of anthropomorphic phantoms used for activity assessment of actinides in lungs. Radiation Protection Dosimetry, 105(1-4), (2003), 403-408.

[35] Lathrop K.D. and Carlson B.G. Discrete Ordinates Angular Quadrature of the Neutron Transport Equation. Los Alamos Scientific Laboratory LA-3186, (1965).

[36] Metropolis N. and Ulam S. The Monte Carlo Method. Journal of the American Statistical Association. 44(247), (1949), 335-341.

[37] Briesmeister J.F. (Editor). MCNP-A general Monte Carlo N-particle transport code. Los Alamos National Laboratory, LA–13709–M Version 4B, (1997).

[38] Hendricks J. and McKinney G.W. Pulse-height tallies with variance reduction. American Nuclear society topical meeting in Monte Carlo, Chattanooga, TN. LA-UR-05-2806, (2005).

[39] Agostinelli S., Allison J., Amako K., Apostolakis J., Araujo H., Arce P., et al. Geant4: A simulation toolkit. Nuclear Instruments and Methods, 506(3), (2003), 250-303.

[40] Jean Louis Genicot, Telma Fonseca, Gary Kramer, Andre Wambersie. Direct determination of radionuclides in the body: Optimisation of measurements parameter and result analysis. Journal of Nuclear Science and Technology, 1, (2011), 87-110.

[41] International Commission on Radiation Units and Measurements. Phantoms and Computational Models in Therapy, Diagnosis and Protection. ICRU Report 48,(1992). (Bethesda, MD: ICRU).

[42] Brownell L., Ellet W. H and Reddy A. R. MIRD Pamphlet No.3: Absorbed fractions for photon dosimetry. Journal of Nuclear Medicine, 9(supplementary 1), (1968), 29-39.

[43] Walter S Snyde, Mary R. Ford and Gordon G. Warner. Estimates of specific absorbed fractions for photon sources uniformly distributed in various organs of a heterogeneous phantom. MIRD Pamphlet No.5, revised (1969).

[44] Cristy M. Mathematical phantoms representing children of various ages for use in estimates of internal dose. U.S. Nuclear Regulatory Commission Rep., NUREG/CR-1159, Also Oak Ridge National Laboratory Report, ORNL/NUREG/TM-367; 1980.

[45] Bouchet L.G., Block E.E., Weber D.A., Atkins H.L and Poston J.W. MIRD Pamphlet No.15: Radionuclide S-values in a revised dosimetric model of the adult head and brain. Journal of Nuclear Medicine,40,(1999), 62S-101S.

[46] Lionel G Bouchet, Wesley E. Bolch, Pablo H, Barry W. Wessels, Jeffry A Siegel, Didier A Rajon, Isabella Clair and George Sgouros. Absorbed fractions and radionuclides S values for six age dependent multiregion models of the kidney. MIRD Pamphlet No.19 Journal of Nuclear Medicine. 44,(2003), 1113-1147.

[47] Jack L Coffe, Mark Cristy and Gordon G Warner. Specific absorbed fraction for photon sources uniformly distributed in the heart chambers and heart wall of a heterogeneous phantom. MIRD Pamphlet no.13, Journal of Nuclear Medicine. 22(1),(1980), 65-71.

[48] Kramer R., Zankl M., Williams G., Drexler G. The calculation of dose from external photon exposure using reference human phantoms and Monte Carlo methods: Part I. The male (Adam) and female(Eva) adult mathematical phantoms. GSF-report-S-885, (1982).

[49] Stabin M., Cristy M., Watson E.E. Mathematical models of the adult female at various stages of pregnancy. ORNL/TM-12907, Oak Ridge National Laboratory, Oak Ridge, TN, (1995).

[50] Clairand I., Bouchet L.G., Ricard M., Durigon M., Di Paola M. and Aubert B. Improvement of internal dose calculations using mathematical models of different adult heights. Physics in Medicine and Biology. 45(10),(2000), 2771-2785.

[51] Park S., Lee J.K. and Lee C. Development of a Korean adult male computational phantom for internal dosimetry calculation. Radiation Protection Dosimetry. 121(3),(2006), 257-264.

[52] Tyagi K., Gopalakrishnan C.R., Jain S. C. and Jain P.C. Anthropomorphic phantom of Indian adult for internal dosimetry. Radiation Protection and Environment, 24, (2001), 102-105.

[53] Venkataraman K., Somasundaram S. and Soman S. D. An evaluation of radiation protection standards for Indian conditions. Health Physics, 9, (1963), 647-52.

[54] Dang H S., Jaiswal D D., Parameswarn M. and Krishnamony S. Physical, anatomical and metabolic data for reference Indian Man-A proposal. Report BARC/1994/E/043, Bhabha Atomic Research Centre, Bombay, India, (1994).

[55] JainS.C., Metha S.C., Kumar B., Reddy A.R. and Nagaratinam A. Formulation of the reference Indian adult: Anatomic and physiological data. Health Physics, 68(4),(1995), 509-522.

[56] Datta S. General expressions for the volume of organs in the MIRD phantom and their use to arrive at an Indian Reference Man. BARC-1170, Bhabha Atomic Research Centre, Bombay, India (1982).

[57] Biju K. and Nagarajan P.S. Committed normalized effective doses to an Indian adult in conventional diagnostic X-ray chest examinations. Radiation Protection dosimetry, 88(2),(2000), 119-28.

[58] Reddy A. R and Jain S. C. Dosimetry of internal emitters in nuclear medicine and radiation protection. DRDO Monograph.(2011), DRDO.

[59] Pretorius P. H., Xia W., King M.A., Tsui B.M., Pan T.S. and Villegas B.J. Evaluation of right and left ventricular volume and ejection fraction using a mathematical cardiac torso phantom. Journal of Nuclear Medicine, 38(10), (1997), 1528-1535.

[60] Segars W.P, Lalush D.S. and Tsui B.M.W. Modeling respiratory mechanics in the MCAT and spline based MCAT phantoms. IEEE Transactions on Nuclear Science. 48(1), (2001), 89-97.

[61] Zankl M., Veit R., Williams G., Schneider K., Fendel H., Petoussi N. and Drexler G. The construction of computer tomographic phantoms and their application in radiology and radiation protection. Radiation Environment and Biophysics, 27(2), (1988), 153-164.

[62] Gary H. Kramer, Kevin Capello, Albert Chian, and Barry M. Hauck HML's Whole body counter: Measuring highly radioactive persons. Health Physics 97, (2009), 630-636.

[63] Krstic D. and Nikezic D. Efficiency of wholebody counter for various body size calculated by MCNP5 software. Radiation Protection dosimetry, 142(2-4), (2010), 168-173.

[64] Gary H. Kramer. Consideration in assigning dose based on uncertainties from *in-vivo* counting. Environmental Health Perspectives, 105, S-6, (1997), 1393-1395.

[65] Damet J., Bochud F.O., Bailat. C., Laedermann J.P and Baechler S. Variability of radioiodine measurements in the thyroid. Radiation Protection Dosimetry, 144,(1-4), (2011), 326-329.

[66] Morzocchi O. and Breustedt B. Theoretical assessment of whole body counting uncertainties using numerical phantoms of varying sizes and sexes. Radiation Protection Dosimetry, 144(1-4), (2011), 339-343.

[67] Gary H. Kramer, Linda C. Burns and Steven Guerriere. Monte Carlo simulation of a scanning detector whole body counter and the effect of BOMAB phantom size on the calibration. Health Physics 83(4), (2002), 526-533.

[68] Gary H. Kramer, Linda C. Burns and Suzanne Yiu. Lung counting: evaluation of uncertainties in lung burden estimation arising from a heterogeneous lung deposition using Monte Carlo code simulations. Radiation Protection dosimetry 74(3), (1997), 173-182.

[69] Gibbs S.J., Pujol A., Chen T.S., Malcolm A.W. and James A.E. Patient risk from interproximal radiography. Oral Surgery, Oral Medicine, Oral Pathology and Oral radiology. 58(3),(1984), 347–354.

[70] Williams G., Zankl M., Abmayr W., Veit R. and Drexler G. The calculation of dose from external photon exposures using reference and realistic human phantoms and Monte Carlo methods. Physics in Medicine and Biology, 31(4),(1986), 449–452.

[71] Zankl M., Veit R., Williams G., Schneider K., Fendel H., Petoussi N. and Drexler G. The construction of computer tomographic phantoms and their application in radiology and radiation protection. Radiation and Environmental Biophysics, 27(2), (1988), 153-164.

[72] Zubal I.G., Harrell C.R., Smith E.O., Rattner Z., Gindi G. and Hoffer P.B. Computerized three dimensional segmented human anatomy. Medical Physics. 21(2), (1994), 299-302.

[73] Spitzer V.M. and Whitlock D.G. The visible human dataset: The anatomical platform for human simulation. The Anatomical Record 253(2),(1998), 49-57.

[74] International Commission on Radiological Protection Publication 89. Basic anatomical and physiological data for use in radiological protection: Reference values. Annals of ICRP 32(3-4), (2002), (New York: Elsevier).

[75] Kramer R., Vieira J.W., Khoury H.J, Lima F.R.A. and Fuelle D. All about MAX: a male adult voxel phantom for Monte Carlo calculations in radiation protection dosimetry. Physics in Medicine and Biology, 48(10), (2003), 1239-1262.

[76] Kramer R., Khoury H.J., Vieira J.W., Loureiro E.C.M., Lima V.J.M., Lima F.R.A. and Hoff G. All about FAX: a Female Adult voXel phantom for Monte Carlo calculation in radiation protection dosimetry. Physics in Medicine and Biology, 49(23), (2004), 5203-5216.

[77] Dimbylow P.J. The development of realistic voxel phantoms for electromagnetic field dosimetry. Proceedings of International workshop on voxel Phantom Development. Chilton, UK: National Radiological Protection Board(1995), Chilton, UK, July 6-7, 1-7.

[78] Dimbylow P.J. Development of the female voxel phantom, Naomi, and its application to calculations of induced current densities and electric fields from applied low frequency magnetic and electric fields. Physics in Medicine and Biology, 50(6), (2005), 1047-1070.

[79] International Commission on Radiological Protection. Report of the Task Group on Reference Man Publication 30, (1975), (Oxford: Pergamon).

[80] Jones D.G. A realistic anthropomorphic phantom for calculating organ doses arising from external photon irradiation. Radiation Protection Dosimetry, 72(1),(1997), 21–29.

[81] Caon M., Bibbo G. and Pattison J.E. An EGS4-ready tomographic computational model of a 14-year old female torso for calculating organ doses from CT examinations. Physics in Medicine and Biology. 44(9),(1999), 2213-2225.

[82] Xu X.G., Chao T. C. and Bozkurt A. VIP-MAN: an image-based whole- body adult male model constructed from color photographs of the visible human project for multi-particle Monte Carlo calculations. Health Physics, 78(5),(2000), 476-486.

[83] Zankl M. and Wittmann A. The adult male voxel model 'Golem' segmented from wholebody CT patient data. Radiation and Environmental Biophysics, 40(2), (2001), 153-162.

[84] Shi C. and Xu X.G. Development of a 30-week-pregnant female tomographic model from computed tomography (CT) images for Monte Carlo organ dose calculations. Medical Physics, 31(9),(2004), 2491-2497.

[85] Zhang J., Na Y.H., Caracappa P.F. and Xu X.G. RPI-AM and RPI-AF, a pair of mesh-based, size adjustable adult male and female computational phantoms using ICRP-89 parameters and their calculations for organ doses from monoenergetic photon beams. Physics in Medicine and Biology, 54 (19), (2009), 5885-5908.

[86] Saito K., Wittmann A., Koga S., Ida Y., Kamei T., Funabiki J. and Zankl M. Construction of a computed tomographic phantom for a Japanese male adult and dose calculation system. Radiation and Environmental Biophysics. 40(1), (2001), 69-76.

[87] Sato K., Noguchi H., Emoto Koga Y. and Saito K. Japanese adult male voxel phantom constructed on the basis of CT-images. Radiation Protection Dosimetry, 123(3), (2007), 337-344.

[88] International Commission on Radiological Protection Publication 110. Adult reference computational phantoms. Annals of ICRP 39(2), (2009). (Oxford: Elsevier).

[89] Lemosquet A., de Carlan L. and Clairand I. Voxel anthropomorphic phantoms: review of models used for ionising radiation dosimetry. Radioprotection 38(4), (2003), 509-528.

[90] Kramer G.H., Burns L.C. and Thind K.S. Monte Carlo simulations: A useful tool to extend *in-vivo* calibrations and explore alternative approaches. Radiation Protection Dosimetry. 105(1-4), (2003), 553-556.

[91] Petoussi-Henss N., Jacob P., Zankl M. and Saito K. Organ doses for fetuses, babies, children and adults from environmental gamma-rays. Radiation Protection Dosimetry, 37(1), (1991), 31-41.

[92] Taranenko V. and Xu X.G. Fluence to absorbed foetal dose conversion coefficients for photons in 50 keV -10 GeV calculated using RPI-P model. Radiation Protection Dosimetry. 131(2), (2008), 159-166.

[93] Staton R.J., Lee C., Lee C., Williams M.D., Hintenlang D.E., Arreola M.M., Williams J.L. and Bolch W.E. Organ and effective doses in newborn patients during helical multislice computed tomography examination. Physics in Medicine and Biology 51(20), (2006), 5151-5166.

[94] Lee C., Lodwick D., Hasenauer D., Williams J.L., Lee C. and Bolch W.E. Hybrid computational phantoms of the male and female newborn patient: NURBS-based wholebody models. Physics in Medicine and Biology, 52(12), (2007), 3309-3333.

[95] Kinase S., Zankl M., Kuwabara J., Sato K., Noguchi H., Funabiki J. and Saito K. Evaluation of specific absorbed fractions in voxel phantoms using Monte Carlo simulation. Radiation Protection Dosimetry,105(1-4), (2003), 557-563.

[96] Lee C., Lee C., Park S.-H. and Lee J.-K. Development of two Korean adult tomographic computational phantoms for organ dosimetry. Medical Physics, 33(2), (2006), 380-390.

[97] Zhang B., Ma J., Liu L. and Cheng J. CNMAN: a Chinese adult male voxel phantom constructed from color photographs of a visible anatomical data set. Radiation Protection Dosimetry, 124(2), (2007), 130-136.

[98] Lataillade J.J., Doucet C., Bey E., Carsin H., Huet C., Clairand I., Bottollier-Depois J.F., Chapel A., Ernou I., Gourven M., Boutin L., Hayden A., Carcamo C., Buglova E., Joussemet M., de Revel T. and Gourmelon P. New approach to radiation burn treatment by dosimetry-guided surgery combined with autologousmesenchymal stem cell therapy. Regenerative Medicine, 2(5), (2007), 785-794.

[99] Courageot E., Huet C., Clairand I., Bottollier-Depois J.F. and Gourmelon P. Numerical dosimetric reconstruction of radiological accident in South America on April 2009. Radiation Protection Dosimetry, 144(1-4), (2011), 540-542.

[100] Morzocchi O and Breustedt B. Theoretical assessment of wholebody counting uncertainties using numerical phantoms of varying sizes and sexes. Radiation Protection Dosimetry, 144(1-4), (2011), 339-343.

[101] Nadar M.Y, Akar D.K Patni H.K, Singh I.S, Mishra L, Rao D.D and Pradeepkumar K.S Monte Carlo simulations of skull and knee voxel phantoms for the assessment of skeletal burden of low energy photon emitters. Radiation Protection Dosimetry, 162 (4), (2014), 469-477.

[102] Fantinova K and Fojtik P. Monte Carlo simulation of the BEGE detector response function for in-vivo measurements of ^{241}Am in the skull. Radiation Physics and Chemistry,104, (2014), 345-350.

[103] MasaTakahasi, Sakae Kinase and Richard Kramer Evaluation of counting efficiencies of a wholebody counter using Monte Carlo simulation with VOXEL phantoms. Radiation Protection Dosimetry. 144(1-4), (2011), 407-410.

[104] Hegenbart L, Na Y H, Zhang J Y, Urban M and George Xu X. A Monte Carlo study of lung counting efficiency for female workers of different breast sizes using deformable phantoms. Physics in Medicine and Biology, 53, (2008), 5527-5538.

[105] Farah J, Broggio D and Franck D. Female workers and in-vivo lung monitoring: a simple model for morphological dependence of counting efficiency curves. Physics in Medicine and Biology, 55,(2010), 7277-7395.

[106] Gary H Kramer (2006), Measurement of the quantity of activity of radionuclides in simulated organs: an international intercomparison, Human Monitoring Laboratory, Radiation Surveillance and Health Assessment Division, Radiation Protection Bureau, Ontario. HMLTD-06-08, (2006).

[107] Gordon Gilmore and John D. Hemingway. Practical gamma ray spectrometry. (2003) John Wiley & Sons .

[108] Nicholas Tsoulfanidis. Measurement and detection of radiation. Second edition. (1995) Taylor and Francis.

[109] Glenn. F.Knoll Radiation detection and measurement. Third edition. (2003)John Wiley & sons. Inc.

[110] International Commission on Radiological Protection. Publication 107. Nuclear Decay Data for Dosimetric Calculations. Annals of ICRP 38(3), (2008). (Elsevier).

[111] He, Z., Bird, A.J. and Ramsden, D. A ratio pulse shape discriminator. Nuclear Instruments and Methods in Physical Research. A, 336,(1993), 236–245.

[112] Ishigure, N., Nakano, T. and Enomoto, H. Activity measurement of plutonium in solid samples by Lx-ray counting with a Phoswich detector. Hoken Butsuri28, (1995), 195–201.

[113] Clement G.G and Delle site A. Assessment of Plutonium in man. EUR 7157E, (1982).

[114] Rajagopal V, Mathiyarasu R, Danalakshmi B, Sreedevi K.R, Kramer G.H, Olsen P.C and Loesch R.M. Performance of wholebody counters at IGCAR in an Intercomparison exercise. Radiation Protection Dosimetry, 82(1), (1999), 19-23.

[115] AkarD.K., PatniH.K.,NadarM.Y, Ghare V.P, and Rao D.D.Monte Carlo simulations of NaI(Tl) detector in a shadow shield scanning bed wholebody monitor for uniform and axial cavity activity distribution in a BOMAB phantom. Radiation Protection Dosimetry.155(3), (2013), 292-299.

[116] Kramer, G.H., Noel,L. and Burns, L.C. The BRMD BOMAB family. Health Physics. 61, (1991), 895-902.

[117] Kramer, G.H., Lee, T.Y. and Kim, J.S. A joint HML KAERI project - comparison of the LLNL and JAERI torso phantoms using four 50 mm Ge detectors. Health Physics. 74(5), (1998), 613–618.

[118] Kramer, G.H. and Hauck, B.M. Chest wall thickness measurements of the LLNL and JAERI torso phantoms for germanium detector counting. Health Physics. 73(5), (1997), 831–837.

[119] Kramer, G.H., Hauck, B.M. and Allen, S.A. Comparison of the LLNL and JAERI torso phantoms using Ge detectors and Phoswich detectors. Health Physics. 74(5), (1998), 594–601.

[120] Vickers, L.R. The gender specific chest wall thickness prediction equations for routine measurements of ^{239}Pu and^{241}Am within the lungs using HPGe detectors. Health Physics. 70(3), (1996). 346–357.

[121] Childress N.L and W.H. Miller MCNP Analysis and Optimization of a Triple Crystal Phoswich detector. Nuclear Instruments and Methods, Section A, 490(1-2), (2002), 263-270.

[122] Metwally W. A., Gardner R.P. and AvneedSood. Gaussian broadening of MCNP Pulse Height Spectra. Transactions of the American Nuclear Society, 91,(2004), 789-790.

[123] Mehta D. J., Singh I. S. and Sharma R. C. A family of phantoms representative of male Indian population for calibration of whole body counters. Radiation Protection and Environment. 26(1-2), (2003), 327-332.

[124] Broggio D, BentoJ, CaldeiraM et.al, Monte Carlo modeling of the in-vivo lung monitoring of enriched uranium: Results of an international comparison. Radiation Measurements, 47(2012) 492-500.

[125] www.sciencedirect.com/icrp/icrp110/supplementary data.

[126] Sabbir Ahmed A. S. M., Kevin Capello, Gary H Kramer. Assessment of the chest wall thickness of the Lawrence Livermore torso phantom using a voxel image. Health Physics, 100(6), (2011), 574-582.

[127] Hegenbart Lars. et.al, Determination of chest wall thickness of anthropometric voxel models. Proceedings of third European IRPA congress (2010)June 14-16, Heisinki, Finland.

[128] Doerfel H., Andrasi A., Bailey M., Berkovski V., Balanchardon E., Castellani C.M., Hurgten C., Leguen B., Malatova I., March J. and Stather J. General guidelines for the

estimation of committed effective dose from incorporation monitoring data. Project IDEAS-EU, (2006),Contract No. FIKR-CT2001-00160.

[129] Jad Farah, David Broggio and Didier Franck Efficient calculation of in-vivo efficiency curves using variance reduction techniques. Progress in Nuclear Science and Technology, 2, (2011), 247-252.

[130] Moraleda M., Gomez-Ros J.M., Lopez M.A., Navarro T. and Navarro J. F. A MCNP-based calibration method and a voxel phantom for *in-vivo* monitoring of ^{241}Am in skull Nuclear Instruments and Methods in Physics Research A 526 (2004), 551-559.

[131] Doerfel H and Heide B. Calibration of a Phoswich type partial body counter by Monte Carlo simulation of Low-Energy photon transport. Radiation. Protection Dosimetry 124(4), (2007), 464-472.

[132] Nadar M.Y., Sing I.S., Chaubey A., Kantharia S. and Bhati S. Ultrasonic measurements of chest wall thickness for the assessment of internal contamination due to actinides in Indian radiation workers. Recent trends in Radiation Physics Research. Proceedings of NSRP-18, (2009), 284-285.

[133] American National Standards Institute. Performance criteria for radiobioassay. Mclean, V A. Health physics Society HPS N13.30-1996, (1996)

[134] GenicotJ. L., KoukoulioV. and CarinouE. Monte Carlo calculations applied to the parametrical studies in a whole body counter. Radiation Protection Dosimetry 128, (2008), 49-61.

[135] Hunt J.G., Bertelli L., Dantas B. M., Lucena E. Calibration of *in-vivo* measurement systems and evaluation of lung measurement uncertainties using a mathematical voxel phantom. Radiation Protection Dosimetry 76(3), (1998), 179-184.

[136] Farah J., Broggio D., Henriet J., Makovicka L. and Franck D. Library of Mesh and NURDS female phantoms for pulmonary *in-vivo* counting studies. Proceedings of 13thInternational Congress of International Radiation Protection Association. May, 2012, IRPA-13. www.irpa13glasgow.com/information/downloads-fullpapers.

[137] Kramer G.H and Capello K. Effect of lung volume on counting efficiency: a Monte Carlo investigation. Health Physics. 88(4): 2005, 357-363.

[138] Genicot J.L ,Culot J.P., Hardeman F., Alzetta J.P. and Vanmarcke H. V. The measurement of ^{241}Am in the body with a double low energy germanium detector system.Proceeding of 9th international congress of International Radiation Protection Association. April, 1996, IRPA-9. www.irpa.net/international congress/IRPA9 Vienna, April 1996/v2_144.pdf

[139] Vrba T Head calibration phantoms for actinides: measurements and simulations. Radiation Protection and Dosimetry, 144(1-4), (2011), 357-360.

[140] LépyA M.C., PlagnardJ., Ferreux L. Measurement of ^{241}Am Lx-ray emission probabilities. Applied Radiation Isotopes 66 (2008), 715-721.

[141] Schlaeger, M. Precise modeling of coaxial germanium detectors in preparation for a mathematical calibration. Nuclear Instruments and Methods in Physics Research Section A 580, (2007), 137-140.

[142] Tomas Vrba, Pedro Nogueira, David Broggio, Margarida Calderia, Kevin Capello, Karin Fantinova, Catarina Figueira, John Hunt, Debora Leone, Manohari Murugan, Olaf Marzocchi, Montse Moraleda, Arron Shutt, Soheigh Suh, Masa Takahashi, Katarzyna Tyminska, Maria Antonia Lopez, Rick Tanner. EURADOS intercomparison on MC modeling for the in-vivo monitoring of Am-241 in skull phantoms (part I). Radiation Physics and Chemistry 104, (2014), 332-338.

Appendix A.1MCNP input file for modeling the Shielded Chair with BOMAB phantom for 2.75 MeV photons present in the thorax region

```
C Shielded Chair  Na-24 efficiency 6mm steel in front and 6 mm back chair back lead lead density 7.0
C tilted y 20 deg BOMAB PHANTOM SOURCE thorax
1 1 -7.0 70 -71 61 -67 -5 3  #31 #32  imp:p=1 $ leaning portion of the chair
3 1 -7.0 71 -5 -6 -209 61 -66 7  imp:p=1 $ slanting portion of the chair
4 1 -7.0 71 -5 -6 -209 63 -67 7  imp:p=1 $slanting portion of the chair lt
5 1 -7.0 209 -8 7 -4  61 -66    imp:p=1 $ arm rest rt
6 1 -7.0 209 -8 7 -4  63 -67    imp:p=1 $ arm rest lt
7 1 -7.0 71 -8 61 -67  -7 3     imp:p=1 $ sitting place
10  2 -3.667  26 -27 -28                imp:p=1 $ detector
11  3 -7.86   410 -26 -28                imp:p=1 $ SS window
12  5 -1.205E-3       10 -52 12 -13 14 -15 (-26:27:28) #11 #26 #27 imp:p=1
13  1 -7.0   10 -52 22 -23 24 -25 (-10:52:-12:13:-14:15) (-26:27:28) #11 imp:p=1
14 6 -1.3  -38 39 -40  #44    IMP:P=1 $ neck
15 6 -1.3  -35  36 -37 #43    IMP:P=1 $ thorax
16 6 -1.3   -34 32 -33 #42     IMP:P=1 $pelvis
17 6 -1.3   -31  30  -92 #40    IMP:P=1 $ thigh right
18 6 -1.3   -29 30 -92  #41    IMP:P=1 $ thigh left
39 6 -1.3 -73 74 -75 #45     imp:p=1 $head
40 7 -1.0 -76 -78 79       imp:p=1 $inside rt thigh
41 7 -1.0 -77 -78 79       imp:p=1 $ inside lt thigh
42 7 -1.0 -80 81 -82       imp:p=1 $inside pelvis
43 7 -1.0 -83 84 -85       imp:p=1 $inside thorax
44 7 -1.0 -86 87 -88       imp:p=1 $inside neck
45 7 -1.0 -89 90 -91       imp:p=1 $inside head
46 6 -1.3 -95 93 -7 #48       imp:p=1 $ left leg
47 6 -1.3 -94 93 -7  #49       imp:p=1 $right leg
48 7 -1.0 -96 -97 98        imp:p=1 $ left leg inner
49 7 -1.0 -99 -97 98        imp:p=1 $right leg inner
50 6 -1.3 -100 -37 101 #52     imp:p=1 $right hand
51 6 -1.3 -102 -37 101 #53     imp:p=1 $left hand
52 7 -1.0 -85 -103 104      imp:p=1 $right hand inner
53 7 -1.0 -85 -105 104      imp:p=1 $left hand inner
c back ss
19 3 -7.86 72 -70 -64 65 -5 3      imp:p=1
```

```
c side ss
20 3 -7.86 65 -61 3 -5 -6 70 -209    imp:p=1
21 3 -7.86 66 -62 43 -5 -6 69 -209    imp:p=1
22 3 -7.86 67 -64 3 -5 -6 70 -209    imp:p=1
23 3 -7.86 68 -63 43 -5 -6 69 -209    imp:p=1
C TOP SITTING SS
24 3 -7.86 71 -8 -43  7 66 -63      imp:p=1
c front ss
25 3 -7.86 71 -69 66 -63 -5 43      imp:p=1
c Outer hand rest ss
31 3 -7.86 209 -8 65 -61 -4 3                imp:p=1
32 3 -7.86 209 -8 67 -64 -4 3                imp:p=1
C Inner
36 3 -7.86 209 -8 66 -62 -4 43                imp:p=1
37 3 -7.86 209 -8 68 -63 -4 43                imp:p=1
c detector back shield
26 1 -7.0 51 -52 12 -13 14 -15 #10 #27          IMP:P=1
C DETECTOR SUPPORT PLATE
27 3 -7.86 53 -27 55 -54 57 -56 #10            IMP:P=1
33 5 -1.205e-3 (69 -209 62 -68 -5 -6 43) #17 #18 #16 #15 #14 #39 #40 #41 &
   #42 #43 #44 #45 #50 #51 #52 #53 imp:p=1 $ air sitting place before arm rest
34 5 -1.205e-3 (209 -8 62 -68 43 -4) #17 #18 #40 #41   imp:p=1 $air in bet hand rest
35 5 -1.205e-3 (209 -8  65 -64 4 -5)  #13  #27 #12  #10 #11 #26      imp:p=1 $ air above the arm rest
38 5 -1.205e-3 (6 -209 65 -64 -5) #13 #27 #12 #10 #11 #26 #39 #45 imp:p=1
28 5 -1.205e-3 -9 (-72:8:64:-65:5:-3) &
   #10 #11 #12 #13 #26 #27 #40 #41 #17 #18 #46 #47 #48 #49 imp:p=1 $ air
c (-72:8:-65:64:-3:-5)
29 0 9                                imp:p=0

C Surface Cards
C DETECTOR BACK SHIELD
51 2 PX -2.2
52 2 PX 2.8
C DETECTOR SUPPORT PLATE
53 2 PX -1
54 2 PY 11.65
55 2 PY -11.65
56 2 PZ 11.65
57 2 PZ -11.65
C SS ADDITION CHAIR
41 1 CZ  49.3
42 1 CZ  58.4
```

```
43 1 PZ -24.4
C 46 1 P   2.7475 0 1 0.5321
C 47 1 PX  -0.5
C SHIELDED CHAIR
1  1 CZ  49.0
2  1 CZ  59.0
3  1 PZ -40.0
4  1 PZ   0.0
5  1 PZ  87.0
6  1 P   2.7475 0 1 -25.5321
7  1 PZ -25.0
8  1 PX  0
C OUTSIDE WORLD
9  1 SO  150.0
C DETECTOR shield
10 2 PX -13.2
C 11 2 PX  10.3
12 2 PY -15.5
13 2 PY  15.5
14 2 PZ -15.5
15 2 PZ  15.5
22 2 PY -23.5
23 2 PY  23.5
24 2 PZ -23.5
25 2 PZ  23.5
C DETECTOR
26 2 PX -10.2
27 2 PX 0
28 2 CX 10.15
410 2 px -10.28
c phantom
31 4 k/x 503.15 8.5 -13.5 0.00023
29 4 k/x 503.15 -8.5 -13.5 0.00023
30 4 px 39.1
92 4 px 0
76 4 k/x 477.51 8.5 -13.5 0.00024
77 4 k/x 477.51 -8.5 -13.5 0.00024
78 4 px -0.3
79 4 px -38.8
34 3 rec -39.5 0 -7.9 0 0 19.9 9.9 0 0 0 17.6 0 $pelvix
32 3 pz -7.9
33 3 pz 12.0
```

```
80 3 rec -39.5 0 -7.6 0 0 19.3 9.6 0 0 0 17.3 0 $pelvix inner
81 3 pz -7.6
82 3 pz 11.3
35 3 rec -39.5 0 12.5 0 0 41.1 9.9 0 0 0 14.7 0 $ thorax
36 3 pz 12.5
37 3 pz 53.6
83 3 rec -39.5 0 12.8 0 0 40.5 9.6 0 0 0 14.4 0 $ thorax inner
84 3 pz 12.8
85 3 pz 53.3
38 3 rec -39.5 0 54 0 0 9.4 6.5 0 0 0 7.0 0 $ neck
39 3 pz 54
40 3 pz 63.4
86 3 rec -39.5 0 54.3 0 0 8.8 6.2 0 0 0 6.7 0 $neck inner
87 3 pz 54.3
88 3 pz 63.1
73 3 rec -39.5 0 64 0 0 19.4 7.0 0 0 0 9.2 0 $head
74 3 pz 64
75 3 pz 83.4
89 3 rec -39.5 0 64.3 0 0 18.8 6.7 0 0 0 8.9 0 $ head inner
90 3 pz 64.3
91 3 pz 83.1
95 c/z 16.7 6.0 5.8 $ leg or calf
93 pz -64.2
94 c/z 16.7 -6.0 5.8
96 c/z 16.7 6.0 5.5 $ leg inner
97 1 pz -25.3
98 pz -63.9
99  c/z 16.7 -6.0 5.5
100 3 c/z -39.5 22.6 4.6 $arm
101 3 pz -3.6
102 3 c/z -39.5 -22.6 4.6
103 3 c/z -39.5 22.6 4.3 $arm inner
104 3 pz -3.3
105 3 c/z -39.5 -22.6 4.3 $
209 1 px -9.50
C CHAIR
61 1 PY -46
62 1 PY -34
63 1 PY 34.6
64 1 PY 46.6
65 1 PY -46.6
66 1 PY -34.6
```

```
67 1 PY 46.0
68 1 PY 34.0
69 1 px -49.7
70 1 px -61.3
71 1 px -51.3
72 1 px -61.9

C PHYSICS CARD
MODE P
SDEF ERG=2.75419 POS=-38 0 8 X=D1 Y=D2 Z=D3 CEL=43
SI1 -42 -33
SP1  0 1
SI2 -15 15
SP2 0 1
SI3 -14 31
SP3 0 1
F8:P 10
M1   82000 1.0
M2 11000 -0.1534 53000 -0.8466
M3    26000 6.0183e-02     $ Stainless Steel
     24000 1.6387E-02
     28000 6.4508E-03
     14000 1.6853E-03
     25000 1.7234E-03
M4  1001 10 6012 6 8016 5
M5  6000 -0.000125 7000 -0.755267 8000 -0.231781 18000 -0.012827  $Air
m6  1000 -0.0484 6000 -0.3871 17000 -0.5645 $ pvc
m7  1000 -0.1111 8000 -0.8889 $ water
FT8 GEB 0.02264 0.017620364 1.29002
*TR1  0 0 0      -15 90 75   90 0 90  -105 90 -15
*TR2  0 0 38.5   -20 90 70   90 0 90  -110 90 -20
*tr3 5 0 -15.4     -15 90 75   90 0 90  -105 90 -15
*tr4 10.5 0 0       -15 90 75 90 0 90 -105 90 -15
E8 0 1E-03 0.003 998I 3.0
NPS 210000000
PRDMP -60 -60
PRINT
```

Appendix A.2MCNP input file for modeling the LLNL Phantom

```
c'  LLNL - Voxel Phantom with phoswich detector brought closer to
60 kev 1c det change according to voxel size change
8  6 -0.0012   -1 #151 #152 #155 #156 #157 fill=996 IMP:P=1    $
7161276
c Filling Universes
c
1 1  -1.120     -100 u = 1    imp:p=1          $ phantom body
2 1  -1.120     -100 u = 2    imp:p=1          $ chest plate
3 3  -1.400000      -100 u = 3    imp:p=1          $ bone
4 4  -0.296000      -100 u = 4    imp:p=1          $ l-lung
5 4  -0.296000      -100 u = 5    imp:p=1          $ r-lung
6 6  -0.0012      -100 u = 6    imp:p=1          $ surrounding Air
c
c Lattice Unit Cell
c
7  6  -0.0012    -2    lat = 1 u = 996 imp:p=1
                fill = 0:255  0:255 xxx:yyy
108r 6 2r 2 7r 6 120r 2 6r 6 3r 4 6 2r 1 108r 6 3r 2 7r 6 119r 2
     5r 6 3r 4 1r 6 1r 1 110r 6 2r 2 7r 6 118r 2 6r 6 2r 4 2r 6 1r 1
     111r 6 2r 2 7r 6 117r 2 5r 6 3r 4 1r 6 1r 1 112r 6 2r 2 7r 6
     116r 2 5r 6 3r 4 2r 6 1r 1 113r 6 2r 2 7r 6 115r 2 5r 6 3r 4
     2r 6 1 114r 6 2r 2 7r 6 114r 2 5r 6 3r 4 2r 6 1r 1 114r 6 2r 2
     7r 6 113r 2 6r 6 3r 4 2r 6 1r 1 115r 6 2r 2 7r 6 112r 2 5r 6
     4r 4 2r 6 1 116r 6 2r 2 7r 6 111r 2 5r 6 4r 4 2r 6 1r 1 117r 6
     1r 2 7r 6 111r 2 4r 6 5r 4 2r 6 1r 1 117r 6 2r 2 7r 6 109r 2
     5r 6 5r 4 1r 6 1r 1 118r 6 2r 2 7r 6 109r 2 5r 6 4r 4 2r 6 1r 1
     118r 6 2r 2 7r 6 109r 2 4r 6 4r 4 3r 6 1r 1 119r 6 2r 2 6r 6
     108r 2 5r 6 4r 4 3r 6 1 120r 6 2r 2 7r 6 107r 2 3r 3 6 5r 4
     2r 6 1r 1 120r 6 2r 2 7r 6 106r 2 5r 6 5r 4 2r 6 1r 1 121r 6
     1r 2 7r 6 108r 2 1r 3 6 5r 4 3r 6 1r 1 121r 6 1r 2 7r 6 117r 4
     3r 6 1r 1 121r 6 2r 2 7r 6 106r 1 2r 6 6r 4 2r 6 1r 1 122r 6
     2r 2 7r 6 106r 1 5r 6 2r 4 3r 6 1r 1 122r 6 2r 2 7r 6 105r 1
     4r 3 1 6 2r 4 3r 6 1r 1 123r 6 1r 2 7r 6 105r 1 4r 3 1 6 2r 4
     3r 6 1r 1 123r 6 2r 2 6r 6 105r 1 3r 3 1r 1 6 2r 4 3r 6 1r 1
     123r 6 3r 2 6 3r 1 1r 6 103r 1 4r 3 1r 1 6 1r 4 4r 6 1r 1 123r 6
     5r 1 5r 6 102r 1 4r 3 1r 6 2r 4 4r 6 1r 1 123r 6 3r 1 7r 6 102r 1
     6r 6 2r 4 4r 6 1r 1 124r 6 2r 1 7r 6 101r 1 7r 6 1r 4 5r 6 1r 1
     124r 6 2r 1 7r 6 101r 1 7r 6 1r 4 5r 6 1r 1 124r 6 2r 1 3 1
     5r 6 101r 1 7r 6 1r 4 5r 6 1r 1 124r 6 2r 1 3 1 6r 6 99r 1 8r 6
     1r 4 5r 6 1 125r 6 2r 3 1r 1 6r 6 99r 1 8r 6 1r 4 5r 6 1 125r 6
     2r 3 1r 1 6r 6 99r 1 7r 6 2r 4 5r 6 5r 1 120r 6 2r 3 1r 1 6r 6
     98r 1 8r 6 2r 4 5r 6 6r 1 37r 6 13r 1 67r 6 2r 3 1r 1 6r 6 98r 1
     8r 6 3r 4 4r 6 6r 1 36r 6 69r 1 12r 6 2r 3 1r 1 6r 6 98r 1 8r 6
     3r 4 3r 6 7r 1 36r 6 85r 3 1 8r 6 96r 1 9r 6 3r 4 3r 6 7r 1
     35r 6 85r 1 3 1 8r 6 96r 1 9r 6 3r 4 4r 6 6r 1 34r 6 86r 1 10r 6
     96r 1 9r 6 3r 4 3r 6 7r 1 34r 6 86r 1 10r 6 95r 1 10r 6 3r 4
     4r 6 6r 1 33r 6 87r 1 10r 6 95r 1 10r 6 3r 4 4r 6 5r 1 34r 6
     87r 1 10r 6 95r 1 10r 6 3r 4 3r 6 6r 1 34r 6 87r 1 11r 6 94r 1
     10r 6 2r 4 4r 6 6r 1 33r 6 88r 1 11r 6 93r 1 11r 6 2r 4 5r 6
     5r 1 33r 6 88r 1 11r 6 93r 1 11r 6 3r 4 4r 6 4r 1 33r 6 89r 1 11r 6 93r 1 12r 6
     2r 4 3r 6 5r 1 32r 6 89r 1 12r 6 92r 1 13r 6 2r 4 3r 6 5r 1
     31r 6 5r 1 23r 6 40r 1 12r 6 6r 1 12r 6 92r 1 13r 6 2r 4 3r 6
     5r 1 30r 6 5r 1 78r 6 6r 1 13r 6 91r 1 13r 6 2r 4 3r 6 5r 1
     29r 6 4r 1 80r 6 5r 1 14r 6 91r 1 13r 6 2r 4 3r 6 5r 1 28r 6
     4r 1 81r 6 5r 1 14r 6 90r 1 14r 6 2r 4 3r 6 5r 1 27r 6 4r 1
     82r 6 5r 1 14r 6 90r 1 14r 6 2r 4 3r 6 5r 1 26r 6 5r 1 82r 6
     4r 1 15r 6 90r 1 15r 6 1r 4 3r 6 5r 1 24r 6 7r 1 82r 6 4r 1
     15r 6 90r 1 15r 6 1r 4 3r 6 5r 1 23r 6 8r 1 82r 6 3r 1 16r 6
     89r 1 13r 3 1r 1 6 1r 4 4r 6 4r 1 22r 6 9r 1 82r 6 3r 1 16r 6
     89r 1 13r 3 1r 1 6 1r 4 4r 6 4r 1 20r 6 11r 1 82r 6 3r 3 1r 1
     14r 6 89r 1 13r 3 2r 1 6 1r 4 3r 6 4r 1 19r 6 12r 1 82r 6 2r 1
     3 1 16r 6 88r 1 14r 3 1r 1 6 1r 4 3r 6 5r 1 16r 6 14r 1 82r 6
     2r 3 1r 1 16r 6 87r 1 15r 3 2r 6 1r 4 3r 6 8r 1 9r 6 17r 1 82r 6
     2r 1 3 1r 1 16r 6 87r 1 16r 3 1r 1 6 1r 4 2r 6 8r 1 7r 6 19r 1
     82r 6 2r 1 3 1 17r 6 87r 1 16r 3 1r 1 6 1r 4 2r 6 9r 1 4r 6
     21r 1 82r 6 1r 1 1r 3 1 17r 6 87r 1 17r 3 1r 6 1r 4 3r 6 8r 1
     3r 6 21r 1 83r 6 1r 1 20r 6 87r 1 17r 3 1r 1 6 1r 4 2r 6 9r 1
     6 23r 1 83r 6 1 21r 6 87r 1 18r 3 1 6 1r 4 2r 6 34r 1 106r 6
     87r 1 20r 6 1r 4 2r 6 33r 1 19r 3 4r 1 82r 6 87r 1 20r 6 1r 4
     3r 6 32r 1 18r 3 7r 1 81r 6 86r 1 21r 6 1r 4 2r 6 32r 1 17r 3
     10r 1 79r 6 86r 1 21r 6 1r 4 3r 6 30r 1 17r 3 12r 1 78r 6 86r 1
     22r 6 1r 4 2r 6 30r 1 17r 3 12r 1 78r 6 86r 1 22r 6 1r 4 3r 6
     28r 1 17r 3 14r 1 77r 6 86r 1 23r 6 1r 4 2r 6 27r 1 18r 3 14r 1
     77r 6 86r 1 23r 6 1r 4 3r 6 25r 1 19r 3 15r 1 75r 6 87r 1 24r 6
     1r 4 3r 6 22r 1 20r 3 16r 1 75r 6 87r 1 24r 6 2r 4 2r 6 21r 1
     21r 3 16r 1 75r 6 88r 1 24r 6 1r 4 3r 6 18r 1 23r 3 17r 1 74r 6
     88r 1 25r 6 4 4r 6 15r 1 24r 3 18r 1 74r 6 88r 1 26r 6 4 4r 6
     12r 1 26r 3 18r 1 73r 6 90r 1 25r 6 1r 4 3r 6 10r 1 28r 3 18r 1
     73r 6 90r 1 26r 6 1r 4 3r 6 7r 1 31r 3 17r 1 73r 6 90r 1 27r 6
     4 4r 6 3r 1 35r 3 16r 1 41r 3 1r 1 28r 6 92r 1 26r 6 1r 4 3r 6
     3r 1 36r 3 15r 1 40r 3 2r 1 28r 6 92r 1 27r 6 1r 4 3r 6 4r 1
     29r 3 2r 1 1r 3 14r 1 40r 3 2r 1 28r 6 94r 1 23r 3 1 2r 6 1r 4
     2r 6 5r 1 28r 3 2r 1 1r 3 13r 1 2r 3 1r 1 35r 3 2r 1 29r 6 94r 1
     23r 3 2r 1 1r 6 1r 4 2r 6 5r 1 27r 3 3r 1 3 13r 1 2r 3 1r 1
     34r 3 3r 1 28r 6 96r 1 23r 3 3r 1 1r 6 4 3r 6 4r 1 15r 6 1r 1
     7r 3 3r 1 3 14r 1 2r 3 1r 1 33r 3 2r 1 30r 6 97r 1 23r 3 4r 1
     6 4 2r 6 5r 1 11r 6 3r 1 8r 3 18r 1 2r 3 2r 1 33r 3 1r 1 30r 6
     99r 1 24r 3 3r 1 1r 6 9r 1 5r 6 6r 1 9r 3 19r 1 1r 3 2r 1 32r 3
     1r 1 30r 6 100r 1 25r 3 4r 1 6 19r 1 14r 3 16r 1 2r 3 2r 1 30r 3
     1 31r 6 102r 1 27r 3 2r 1 2r 6 15r 1 15r 3 16r 1 2r 3 2r 1 63r 6
     103r 1 28r 3 1r 1 4r 6 10r 1 17r 3 17r 1 2r 3 1r 1 62r 6 105r 1
     39r 6 1 22r 3 17r 1 66r 6 107r 1 62r 3 17r 1 18r 3 2r 1 42r 6
     111r 1 61r 3 16r 1 16r 3 6r 1 38r 6 114r 1 61r 3 14r 1 18r 3
     6r 1 35r 6 118r 1 34r 3 5r 1 29r 3 2r 1 60r 6 122r 1 33r 3 5r 1
     90r 6 127r 1 125r 6 133r 1 118r 6 139r 1 112r 6 147r 1 101r 6
     159r 1 89r 6 176r 1 30r 6 24r 1 15r 6 31685r 2 10r 6 236r 2
     26r 6 223r 2 36r 6 215r 2 66r 6 186r 2 74r 6 177r 2 80r 6 173r 2
     84r 6 168r 2 24r 6 13r 2 49r 6 164r 2 20r 6 32r 2 38r 6 161r 2
     17r 6 8r 1 17r 6 20r 2 29r 6 158r 2 13r 6 9r 1 44r 6 6r 2 22r 6
     155r 2 10r 6 10r 1 54r 6 8r 2 15r 6 152r 2 8r 6 10r 1 63r 6
     6r 2 12r 6 150r 2 8r 6 8r 1 70r 6 4r 2 12r 6 147r 2 8r 6 7r 1
     74r 6 4r 2 11r 6 145r 2 7r 6 7r 1 79r 6 4r 2 9r 6 143r 2 7r 6
     6r 1 83r 6 3r 2 9r 6 141r 2 7r 6 6r 1 85r 6 4r 2 8r 6 139r 2
     6r 6 7r 1 88r 6 3r 2 8r 6 137r 2 7r 6 6r 1 90r 6 3r 2 8r 6 135r 2
     7r 6 6r 1 93r 6 3r 2 7r 6 134r 2 6r 6 6r 1 95r 6 3r 2 7r 6 132r 2
     6r 6 6r 1 97r 6 3r 2 7r 6 130r 2 6r 6 7r 1 98r 6 3r 2 7r 6 128r 2
     6r 6 7r 1 100r 6 3r 2 7r 6 127r 2 5r 6 7r 1 102r 6 3r 2 7r 6
     125r 2 6r 6 2r 4 1r 6 2r 1 103r 6 2r 2 7r 6 124r 2 6r 6 3r 4
     1r 6 1r 1 104r 6 3r 2 7r 6 123r 2 5r 6 3r 4 2r 6 1r 1 105r 6
     2r 2 8r 6 121r 2 6r 6 2r 4 2r 6 2r 1 106r 6 2r 2 7r 6 120r 2
     6r 6 3r 4 2r 6 1r 1 107r 6 3r 2 7r 6 119r 2 5r 6 3r 4 2r 6 2r 1
     108r 6 2r 2 7r 6 118r 2 6r 6 3r 4 2r 6 1r 1 110r 6 2r 2 7r 6
     117r 2 5r 6 3r 4 2r 6 2r 1 110r 6 2r 2 7r 6 116r 2 5r 6 3r 4
     3r 6 2r 1 111r 6 2r 2 7r 6 114r 2 6r 6 2r 4 4r 6 1r 1 112r 6
     2r 2 7r 6 114r 2 5r 6 3r 4 3r 6 2r 1 112r 6 2r 2 7r 6 113r 2
     6r 6 2r 4 4r 6 2r 1 112r 6 3r 2 7r 6 112r 2 5r 6 3r 4 3r 6 2r 1
     114r 6 2r 2 7r 6 111r 2 5r 6 3r 4 4r 6 2r 1 114r 6 2r 2 7r 6
     111r 2 5r 6 3r 4 4r 6 1r 1 116r 6 2r 2 7r 6 109r 2 5r 6 3r 4
     4r 6 2r 1 116r 6 2r 2 7r 6 109r 2 5r 6 3r 4 4r 6 2r 1 116r 6
     2r 2 7r 6 109r 2 4r 6 4r 4 4r 6 1r 1 117r 6 3r 2 6r 6 108r 2
     5r 6 3r 4 5r 6 1r 1 118r 6 2r 2 7r 6 107r 2 5r 6 3r 4 4r 6 2r 1
     118r 6 2r 2 7r 6 106r 2 5r 6 4r 4 4r 6 2r 1 118r 6 2r 2 7r 6
     109r 2 2r 6 4r 4 4r 6 1r 1 119r 6 3r 2 6r 6 116r 4 5r 6 1r 1
     120r 6 2r 2 7r 6 106r 1 4r 6 3r 4 5r 6 1r 1 120r 6 2r 2 7r 6
     106r 1 4r 3 6 2r 4 4r 6 2r 1 120r 6 2r 2 7r 6 105r 1 4r 3 1r 6
     2r 4 4r 6 2r 1 120r 6 2r 2 7r 6 105r 1 4r 3 1 6 2r 4 4r 6 1r 1
     122r 6 2r 2 5r 6 106r 1 4r 3 1 6 2r 4 4r 6 1r 1 122r 6 3r 2
     6 3r 1 1r 6 103r 1 4r 3 1r 1 6 2r 4 4r 6 1r 1 122r 6 4r 1 6r 6
     102r 1 4r 3 1r 1 6 1r 4 5r 6 1r 1 122r 6 3r 1 7r 6 102r 1 4r 3
     1r 6 2r 4 5r 6 1r 1 123r 6 2r 1 7r 6 101r 1 5r 3 1r 6 2r 4 5r 6
     1r 1 123r 6 2r 1 7r 6 101r 1 5r 3 1 6 2r 4 5r 6 1r 1 123r 6
     2r 1 7r 6 101r 1 5r 3 1 6 2r 4 5r 6 1r 1 123r 6 2r 1 3 1 5r 6
     100r 1 8r 6 2r 4 5r 6 1 124r 6 2r 1 3 1 6r 6 99r 1 8r 6 2r 4
     5r 6 1 124r 6 2r 3 1r 1 6r 6 99r 1 8r 6 2r 4 5r 6 5r 1 119r 6
     2r 3 1r 1 6r 6 98r 1 9r 6 2r 4 5r 6 7r 1 35r 6 13r 1 67r 6 2r 3
     1r 1 6r 6 98r 1 8r 6 3r 4 5r 6 7r 1 34r 6 70r 1 11r 6 2r 3 1r 1
     7r 6 97r 1 8r 6 3r 4 5r 6 7r 1 33r 6 85r 1 3 1r 1 7r 6 96r 1
     9r 6 3r 4 4r 6 8r 1 33r 6 85r 1 3 1r 1 7r 6 96r 1 9r 6 3r 4
     4r 6 8r 1 32r 6 86r 1 3 1 8r 6 96r 1 9r 6 3r 4 4r 6 8r 1 32r 6
     86r 1 3 1 8r 6 95r 1 10r 6 3r 4 4r 6 8r 1 31r 6 87r 1 10r 6
     95r 1 10r 6 3r 4 4r 6 7r 1 32r 6 87r 1 11r 6 94r 1 10r 6 4r 4
     3r 6 7r 1 32r 6 87r 1 11r 6 94r 1 10r 6 4r 4 3r 6 7r 1 31r 6
     88r 1 11r 6 93r 1 11r 6 4r 4 3r 6 7r 1 31r 6 88r 1 11r 6 93r 1
     11r 6 4r 4 3r 6 7r 1 30r 6 88r 1 12r 6 93r 1 11r 6 4r 4 3r 6
     6r 1 31r 6 88r 1 12r 6 92r 1 13r 6 3r 4 3r 6 6r 1 30r 6 89r 1
     12r 6 92r 1 13r 6 3r 4 3r 6 6r 1 29r 6 3r 1 31r 6 24r 1 20r 6
     8r 1 13r 6 91r 1 13r 6 3r 4 3r 6 6r 1 29r 6 2r 1 79r 6 7r 1
     13r 6 91r 1 13r 6 3r 4 3r 6 6r 1 28r 6 2r 1 80r 6 6r 1 14r 6
     91r 1 13r 6 3r 4 3r 6 6r 1 27r 6 2r 1 81r 6 6r 1 14r 6 90r 1
     14r 6 3r 4 4r 6 4r 1 27r 6 3r 1 81r 6 6r 1 14r 6 90r 1 14r 6
     3r 4 4r 6 4r 1 26r 6 3r 1 11r 6 13r 1 56r 6 5r 1 15r 6 90r 1
     15r 6 2r 4 4r 6 4r 1 25r 6 4r 1 6r 6 25r 1 49r 6 5r 1 15r 6
     89r 1 16r 6 2r 4 4r 6 4r 1 23r 6 6r 1 6r 6 5r 1 13r 6 8r 1 46r 6
     5r 1 15r 6 89r 1 16r 6 3r 4 3r 6 4r 1 22r 6 8r 1 5r 6 3r 1 19r 6
     5r 1 45r 6 4r 1 16r 6 89r 1 16r 6 3r 4 3r 6 5r 1 19r 6 10r 1
     4r 6 2r 1 23r 6 3r 1 44r 6 5r 1 17r 6 88r 1 14r 3 1 1r 6 2r 4
     3r 6 7r 1 16r 6 11r 1 4r 6 2r 1 24r 6 2r 1 44r 6 4r 1 3 1 16r 6
     88r 1 14r 3 1r 1 6 2r 4 3r 6 8r 1 13r 6 13r 1 2r 6 4r 1 25r 6
     1r 1 44r 6 4r 3 1r 1 16r 6 87r 1 15r 3 1r 1 6 2r 4 3r 6 9r 1
     11r 6 13r 1 3r 6 4r 1 25r 6 1r 1 44r 6 3r 1 3 1r 1 16r 6 87r 1
     15r 3 2r 1 6 1r 4 3r 6 9r 1 6r 6 18r 1 4r 6 3r 1 25r 6 1r 1
     44r 6 3r 1 3 1 17r 6 87r 1 16r 3 1r 1 6 2r 4 2r 6 9r 1 4r 6
     20r 1 6r 6 1r 1 25r 6 1 45r 6 2r 1 3 1r 1 17r 6 87r 1 16r 3
     2r 6 2r 4 2r 6 9r 1 3r 6 20r 1 8r 6 1 25r 6 1 45r 6 2r 1 3 1r 1
     17r 6 87r 1 17r 3 1r 1 6 1r 4 3r 6 33r 1 8r 6 1 71r 6 2r 1 1r 3
     1 18r 6 87r 1 17r 3 1r 1 6 1r 4 3r 6 33r 1 8r 6 1 71r 6 2r 1
     21r 6 87r 1 18r 3 1 6 2r 4 2r 6 32r 1 9r 6 1 8r 3 4r 1 57r 6
     1r 1 23r 6 86r 1 21r 6 1r 4 3r 6 31r 1 9r 6 1 6r 3 8r 1 54r 6
     1r 1 24r 6 86r 1 21r 6 2r 4 2r 6 30r 1 9r 6 1r 1 5r 3 11r 1
     52r 6 1r 1 24r 6 86r 1 22r 6 1r 4 3r 6 29r 1 9r 6 1r 1 5r 3
     12r 1 51r 6 1 25r 6 86r 1 22r 6 1r 4 3r 6 28r 1 10r 6 1r 1 4r 3
     13r 1 50r 6 1r 1 25r 6 86r 1 22r 6 2r 4 2r 6 27r 1 10r 6 2r 1
     4r 3 14r 1 48r 6 1r 1 26r 6 86r 1 23r 6 1r 4 3r 6 26r 1 10r 6
     2r 1 3r 3 15r 1 48r 6 1r 1 26r 6 86r 1 23r 6 2r 4 2r 6 24r 1
     12r 6 2r 1 3r 3 16r 1 46r 6 1r 1 26r 6 87r 1 24r 6 1r 4 2r 6
     23r 1 12r 6 2r 1 4r 3 16r 1 45r 6 2r 1 26r 6 87r 1 24r 6 2r 4
     2r 6 21r 1 13r 6 2r 1 4r 3 16r 1 45r 6 1r 1 27r 6 87r 1 25r 6
     1r 4 3r 6 19r 1 14r 6 2r 1 4r 3 16r 1 44r 6 1r 1 28r 6 88r 1
     25r 6 1r 4 3r 6 16r 1 15r 6 2r 1 4r 3 18r 1 42r 6 1r 1 29r 6
     88r 1 26r 6 1r 4 2r 6 14r 1 17r 6 2r 1 4r 3 18r 1 42r 6 1 29r 6
     89r 1 26r 6 1r 4 3r 6 12r 1 17r 6 3r 1 4r 3 18r 1 41r 6 1 30r 6
     90r 1 26r 6 1r 4 4r 6 10r 1 17r 6 2r 1 6r 3 17r 1 40r 6 1 31r 6
     90r 1 27r 6 1r 4 3r 6 11r 1 16r 6 2r 1 6r 3 17r 1 72r 6 92r 1
     26r 6 2r 4 3r 6 12r 1 14r 6 1r 1 8r 3 16r 1 40r 3 1r 1 29r 6
     92r 1 27r 6 2r 4 3r 6 13r 1 11r 6 1r 1 9r 3 16r 1 39r 3 2r 1
     28r 6 94r 1 27r 6 2r 4 3r 6 12r 1 10r 6 1r 1 6r 3 19r 1 39r 3
     2r 1 29r 6 94r 1 28r 6 2r 4 3r 6 12r 1 8r 6 1r 1 7r 3 1 3 17r 1
     37r 3 3r 1 29r 6 96r 1 23r 3 2r 1 2r 6 2r 4 2r 6 11r 1 7r 6
     1r 1 11r 3 16r 1 36r 3 3r 1 30r 6 97r 1 23r 3 4r 1 6 1r 4 3r 6
     11r 1 3r 6 3r 1 10r 3 17r 1 37r 3 2r 1 30r 6 98r 1 24r 3 4r 1
     1r 6 2r 4 6 18r 1 12r 3 16r 1 36r 3 2r 1 30r 6 100r 1 24r 3
     5r 1 1r 6 19r 1 13r 3 16r 1 2r 3 1 31r 3 2r 1 30r 6 102r 1 25r 3
     5r 1 1r 6 15r 1 14r 3 18r 1 2r 3 1 30r 3 1 32r 6 103r 1 27r 3
     3r 1 2r 6 11r 1 16r 3 19r 1 66r 6 105r 1 38r 6 2r 1 20r 3 19r 1
     65r 6 107r 1 6r 1 3 19r 1 14r 3 2r 1 45r 6 110r 1 62r 3 17r 1
     13r 3 5r 1 41r 6 114r 1 61r 3 14r 1 16r 3 6r 1 37r 6 118r 1
     38r 3 2r 1 28r 3 2r 1 19r 3 3r 1 36r 6 122r 1 34r 3 5r 1 89r 6
     127r 1 125r 6 133r 1 118r 6 139r 1 112r 6 147r 1 101r 6 159r 1
     89r 6 176r 1 14r 6 40r 1 15r 6 31685r 2 8r 6 238r 2 25r 6 224r 2
     35r 6 216r 2 66r 6 186r 2 73r 6 179r 2 79r 6 173r 2 84r 6 168r 2
     26r 6 7r 2 53r 6 164r 2 21r 6 23r 2 46r 6 161r 2 17r 6 16r 1
     4r 6 19r 2 35r 6 158r 2 13r 6 13r 1 21r 6 23r 2 24r 6 155r 2
     10r 6 13r 1 49r 6 8r 2 17r 6 152r 2 9r 6 11r 1 59r 6 7r 2 13r 6
     150r 2 8r 6 10r 1 67r 6 5r 2 12r 6 147r 2 8r 6 9r 1 72r 6 4r 2
     11r 6 145r 2 7r 6 9r 1 77r 6 3r 2 10r 6 143r 2 7r 6 8r 1 81r 6
     3r 2 9r 6 141r 2 6r 6 2r 4 6 5r 1 83r 6 4r 2 8r 6 139r 2 6r 6
     2r 4 1r 6 4r 1 86r 6 3r 2 8r 6 137r 2 6r 6 1r 4 2r 6 4r 1 89r 6
     2r 2 8r 6 135r 2 7r 6 4 3r 6 3r 1 91r 6 3r 2 7r 6 134r 2 6r 4
     5r 6 2r 1 93r 6 3r 2 7r 6 132r 2 6r 6 4 4r 6 2r 1 95r 6 3r 2
     7r 6 130r 2 6r 6 4 5r 6 1r 1 97r 6 3r 2 7r 6 128r 2 6r 6 1r 4
     5r 6 1 99r 6 3r 2 7r 6 127r 2 5r 6 1r 4 5r 6 1 101r 6 3r 2 7r 6
     125r 2 6r 6 4 6r 1 102r 6 3r 2 7r 6 124r 2 6r 6 1r 4 6r 1 103r 6
     3r 2 7r 6 123r 2 5r 6 1r 4 6r 1 105r 6 3r 2 7r 6 121r 2 5r 6
     2r 4 6r 1 106r 6 2r 2 7r 6 120r 2 6r 6 1r 4 7r 1 106r 6 3r 2
     7r 6 119r 2 5r 6 2r 4 6r 1 108r 6 2r 2 7r 6 118r 2 6r 6 1r 4
```

7r 1 108r 6 3r 2 7r 6 117r 2 5r 6 2r 4 6r 6 1 109r 6 2r 2 7r 6
116r 2 5r 6 2r 4 7r 1 110r 6 3r 2 7r 6 115r 2 5r 6 2r 4 7r 1
111r 6 2r 2 7r 6 114r 2 5r 6 2r 4 7r 6 1 111r 6 2r 2 7r 6 113r 2
5r 6 3r 4 7r 1 112r 6 3r 2 7r 6 112r 2 5r 6 2r 4 8r 1 113r 6
2r 2 7r 6 111r 2 5r 6 3r 4 7r 6 1 113r 6 3r 2 6r 6 111r 2 5r 6
3r 4 7r 1 115r 6 2r 2 7r 6 109r 2 5r 6 3r 4 8r 1 115r 6 2r 2
7r 6 109r 2 5r 6 3r 4 8r 1 115r 6 3r 2 6r 6 109r 2 4r 6 3r 4
8r 1 117r 6 2r 2 7r 6 107r 2 5r 6 3r 4 8r 1 117r 6 2r 2 7r 6
106r 2 6r 6 3r 4 8r 1 117r 6 2r 2 7r 6 106r 2 5r 6 3r 4 8r 1
119r 6 2r 2 6r 6 108r 2 3r 6 3r 4 8r 1 119r 6 2r 2 6r 6 110r 2
6 4r 4 7r 6 1 119r 6 2r 2 7r 6 106r 1 3r 6 3r 4 8r 6 1 119r 6
2r 2 7r 6 106r 1 5r 6 1r 4 8r 1 121r 6 1r 2 7r 6 105r 1 5r 3
6 1r 4 8r 1 121r 6 2r 2 6r 6 105r 1 6r 6 1r 4 8r 1 121r 6 2r 2
6r 6 105r 1 4r 3 1 6 1r 4 7r 6 1 121r 6 3r 2 2r 6 1r 1 1r 6
103r 1 5r 3 1 6 1r 4 7r 6 1 121r 6 4r 1 6r 6 102r 1 5r 3 1 6
4 8r 6 1 122r 6 2r 1 7r 6 102r 1 4r 3 1r 1 6 4 8r 6 1 122r 6
2r 1 7r 6 101r 1 5r 3 1r 1 6 4 8r 6 1 122r 6 2r 1 7r 6 101r 1
5r 3 1r 6 1r 4 8r 6 1 122r 6 2r 1 7r 6 101r 1 5r 3 1r 6 1r 4
7r 6 1r 1 122r 6 2r 1 8r 6 99r 1 6r 3 1 6 1r 4 7r 6 1 123r 6
2r 1 8r 6 99r 1 6r 3 1 6 4 8r 6 1 123r 6 2r 1 3 1 6r 6 99r 1
6r 3 1 6 4 8r 6 6r 1 117r 6 2r 1 3 1 6r 6 98r 1 9r 6 4 8r 6
8r 1 33r 6 15r 1 65r 6 2r 3 1r 1 6r 6 98r 1 9r 6 4 7r 6 9r 1
32r 6 71r 1 9r 6 3r 3 1r 1 7r 6 97r 1 9r 6 4 7r 6 9r 1 31r 6
85r 1 3 1r 1 7r 6 96r 1 9r 6 1r 4 9r 6 7r 1 30r 6 86r 1 3 1r 1
7r 6 96r 1 10r 6 1r 4 8r 6 7r 1 30r 6 86r 1 3 1r 1 7r 6 96r 1
10r 6 1r 4 8r 6 7r 1 29r 6 87r 1 3 1 8r 6 95r 1 10r 6 2r 4 7r 6
8r 1 29r 6 87r 1 3 1 8r 6 95r 1 10r 6 2r 4 7r 6 8r 1 29r 6 87r 1
3 1 9r 6 94r 1 10r 6 2r 4 7r 6 7r 1 29r 6 88r 1 11r 6 94r 1
10r 6 2r 4 7r 6 7r 1 29r 6 88r 1 11r 6 93r 1 12r 6 1r 4 7r 6
7r 1 28r 6 89r 1 11r 6 93r 1 12r 6 1r 4 7r 6 7r 1 28r 6 88r 1
12r 6 93r 1 12r 6 1r 4 7r 6 7r 1 27r 6 89r 1 12r 6 92r 1 13r 6
2r 4 6r 6 6r 1 28r 6 89r 1 13r 6 91r 1 13r 6 2r 4 7r 6 5r 1
27r 6 3r 1 57r 6 28r 1 13r 6 91r 1 13r 6 2r 4 7r 6 5r 1 27r 6
2r 1 76r 6 10r 1 13r 6 91r 1 13r 6 2r 4 7r 6 5r 1 26r 6 2r 1
77r 6 9r 1 14r 6 91r 1 13r 6 2r 4 7r 6 4r 1 27r 6 2r 1 77r 6
9r 1 14r 6 90r 1 14r 6 2r 4 7r 6 4r 1 26r 6 5r 1 76r 6 8r 1
14r 6 90r 1 15r 6 1r 4 7r 6 4r 1 25r 6 29r 1 53r 6 7r 1 15r 6
90r 1 15r 6 2r 4 6r 6 4r 1 24r 6 37r 1 46r 6 7r 1 15r 6 89r 1
16r 6 2r 4 6r 6 5r 1 22r 6 17r 1 12r 6 10r 1 43r 6 7r 1 15r 6
89r 1 16r 6 2r 4 6r 6 6r 1 19r 6 17r 1 18r 6 6r 1 43r 6 6r 1
17r 6 88r 1 17r 6 1r 4 6r 6 7r 1 17r 6 17r 1 22r 6 3r 1 43r 6
6r 1 17r 6 88r 1 17r 6 2r 4 5r 6 7r 1 16r 6 17r 1 24r 6 2r 1
43r 6 5r 1 18r 6 88r 1 17r 6 2r 4 6r 6 7r 1 13r 6 19r 1 24r 6
2r 1 43r 6 5r 1 3 1 16r 6 87r 1 15r 3 1r 1 6 2r 4 6r 6 7r 1
11r 6 21r 1 25r 6 1r 1 42r 6 5r 1 3 1r 1 16r 6 87r 1 15r 3 2r 1
6 1r 4 6r 6 8r 1 8r 6 23r 1 25r 6 1r 1 42r 6 5r 1 3 1 17r 6
87r 1 16r 3 1r 1 6 1r 4 6r 6 8r 1 4r 6 27r 1 25r 6 1 43r 6 4r 1
3 1r 1 17r 6 87r 1 16r 3 2r 6 2r 4 6r 6 7r 1 3r 6 28r 1 25r 6
1 43r 6 4r 1 3 1 18r 6 87r 1 16r 3 2r 1 6 1r 4 6r 6 40r 1 25r 6
1 43r 6 3r 1 3 1r 1 18r 6 87r 1 17r 3 1r 1 6 1r 4 6r 6 40r 1
69r 6 4r 1 3 1r 1 19r 6 86r 1 18r 3 1r 1 6 1r 4 6r 6 39r 1 7r 3
6r 1 54r 6 3r 1 1r 3 1 20r 6 85r 1 19r 3 1r 1 6 1r 4 6r 6 39r 1
6r 3 9r 1 52r 6 3r 1 23r 6 85r 1 20r 3 1 6 1r 4 6r 6 39r 1 5r 3
11r 1 50r 6 3r 1 24r 6 85r 1 21r 3 1 6 1r 4 5r 6 30r 1 6 7r 1
4r 3 13r 1 49r 6 3r 1 24r 6 86r 1 22r 6 1r 4 5r 6 30r 1 6 7r 1
4r 3 14r 1 6r 6 1 39r 6 3r 1 25r 6 86r 1 23r 6 4 5r 6 39r 1
3r 3 15r 1 6r 6 3r 1 36r 6 3r 1 25r 6 86r 1 23r 6 1r 4 5r 6
38r 1 3r 3 16r 1 5r 6 4r 1 34r 6 3r 1 26r 6 86r 1 24r 6 4 5r 6
38r 1 3r 3 16r 1 5r 6 5r 1 32r 6 4r 1 26r 6 86r 1 24r 6 4 5r 6
25r 1 6 10r 1 4r 3 16r 1 5r 6 6r 1 31r 6 3r 1 26r 6 87r 1 25r 6
4 5r 6 23r 1 2r 6 9r 1 3r 3 17r 1 5r 6 6r 1 30r 6 3r 1 27r 6
87r 1 25r 6 4 5r 6 23r 1 2r 6 9r 1 3r 3 18r 1 4r 6 7r 1 28r 6
3r 1 28r 6 88r 1 25r 6 4 5r 6 22r 1 3r 6 7r 1 4r 3 18r 1 4r 6
8r 1 26r 6 3r 1 29r 6 88r 1 26r 6 4 5r 6 21r 1 2r 6 8r 1 4r 3
18r 1 5r 6 7r 1 26r 6 2r 1 30r 6 88r 1 26r 6 1r 4 5r 6 21r 1
1r 6 8r 1 4r 3 18r 1 5r 6 8r 1 24r 6 2r 1 30r 6 90r 1 26r 6
4 6r 6 30r 1 5r 3 18r 1 5r 6 9r 1 22r 6 2r 1 31r 6 90r 1 27r 6
4 5r 6 30r 1 5r 3 18r 1 6r 6 8r 1 21r 6 2r 1 31r 6 91r 1 28r 6
4 5r 6 28r 1 7r 3 17r 1 6r 6 9r 1 19r 6 2r 1 32r 6 92r 1 27r 6
1r 4 4r 6 27r 1 8r 3 17r 1 7r 6 8r 1 18r 6 2r 1 32r 6 93r 1
28r 6 1r 4 4r 6 25r 1 8r 3 18r 1 7r 6 9r 1 15r 6 3r 1 33r 6
94r 1 28r 6 1r 4 4r 6 23r 1 9r 3 18r 1 8r 6 9r 1 13r 6 3r 1
3 2r 1 29r 6 96r 1 29r 6 4 4r 6 21r 1 10r 3 18r 1 9r 6 11r 1
7r 6 4r 1 3 3r 1 30r 6 96r 1 25r 3 1r 1 2r 6 1r 4 2r 6 20r 1
10r 3 19r 1 10r 6 22r 1 3 3r 1 30r 6 98r 1 24r 3 4r 1 1r 6 4
1r 6 19r 1 11r 3 19r 1 12r 6 18r 1 1r 3 3r 1 30r 6 100r 1 24r 3
5r 1 1r 4 6 18r 1 12r 3 19r 1 14r 6 15r 1 2r 3 2r 1 31r 6 101r 1
24r 3 6r 1 1r 6 15r 1 14r 3 19r 1 18r 6 7r 1 5r 3 2r 1 31r 6
103r 1 25r 3 6r 1 1r 6 11r 1 16r 3 19r 1 31r 3 1r 1 32r 6 104r 1
28r 3 4r 1 4r 6 2r 1 21r 3 19r 1 65r 6 107r 1 61r 3 19r 1 12r 3
2r 1 47r 6 110r 1 62r 3 17r 1 12r 3 4r 1 43r 6 114r 1 61r 3
15r 1 13r 3 6r 1 39r 6 118r 1 71r 3 1r 1 17r 3 3r 1 38r 6 122r 1
36r 3 5r 1 87r 6 128r 1 123r 6 134r 1 118r 6 140r 1 110r 6 148r 1
100r 6 160r 1 89r 6 176r 1 11r 6 44r 1 13r 6 31934r 2 25r 6
225r 2 34r 6 217r 2 64r 6 187r 2 73r 6 179r 2 79r 6 173r 2 84r 6
168r 2 28r 6 2r 2 56r 6 165r 2 21r 6 21r 2 47r 6 161r 2 17r 6
12r 1 9r 6 13r 2 40r 6 158r 2 13r 6 13r 1 22r 6 5r 1 7r 6 7r 2
25r 6 155r 2 10r 6 15r 1 46r 6 8r 2 18r 6 152r 2 9r 6 14r 1
54r 6 8r 2 14r 6 150r 2 8r 6 13r 1 63r 6 5r 2 13r 6 147r 2 8r 6
11r 1 69r 6 5r 2 11r 6 145r 2 7r 6 2r 4 1r 6 6r 1 74r 6 4r 2
10r 6 143r 2 7r 6 1r 4 3r 6 4r 1 78r 6 4r 2 9r 6 141r 2 6r 6
2r 4 3r 6 4r 1 80r 6 4r 2 9r 6 139r 2 6r 6 2r 4 3r 6 4r 1 83r 6
4r 2 8r 6 137r 2 6r 6 2r 4 3r 6 4r 1 86r 6 3r 2 8r 6 136r 2
6r 6 1r 4 4r 6 2r 1 89r 6 3r 2 8r 6 134r 2 6r 6 1r 4 4r 6 2r 1
91r 6 4r 2 7r 6 132r 2 1r 3 2 3r 6 1r 4 4r 6 3r 1 92r 6 4r 2
7r 6 130r 2 1r 3 1r 2 2r 6 2r 4 3r 6 3r 1 94r 6 4r 2 7r 6 128r 2
1r 3 2 3r 6 2r 4 3r 6 3r 1 96r 6 4r 2 7r 6 127r 2 5r 6 2r 4
4r 6 2r 1 98r 6 4r 2 7r 6 125r 2 6r 6 1r 4 4r 6 2r 1 100r 6
3r 2 7r 6 124r 2 6r 6 2r 4 4r 6 2r 1 101r 6 3r 2 7r 6 123r 2
5r 6 2r 4 4r 6 2r 1 103r 6 3r 2 7r 6 121r 2 6r 6 1r 4 5r 6 2r 1
103r 6 3r 2 7r 6 120r 2 6r 6 1r 4 5r 6 2r 1 105r 6 3r 2 7r 6
119r 2 5r 6 2r 4 5r 6 2r 1 106r 6 2r 2 7r 6 118r 2 6r 6 2r 4
4r 6 2r 1 107r 6 3r 2 7r 6 117r 2 5r 6 2r 4 5r 6 2r 1 108r 6
2r 2 7r 6 116r 2 5r 6 2r 4 5r 6 2r 1 109r 6 3r 2 7r 6 115r 2
5r 6 2r 4 5r 6 2r 1 110r 6 2r 2 7r 6 114r 2 5r 6 3r 4 5r 6 2r 1
110r 6 2r 2 7r 6 114r 2 5r 6 2r 4 6r 6 1r 1 111r 6 3r 2 7r 6
112r 2 5r 6 3r 4 5r 6 2r 1 112r 6 2r 2 7r 6 112r 2 5r 6 2r 4
6r 6 2r 1 112r 6 3r 2 6r 6 111r 2 5r 6 3r 4 6r 6 1r 1 114r 6
2r 2 7r 6 110r 2 5r 6 3r 4 6r 6 1r 1 114r 6 2r 2 7r 6 109r 2
5r 6 3r 4 6r 6 2r 1 114r 6 3r 2 6r 6 109r 2 5r 6 3r 4 6r 6 2r 1
115r 6 2r 2 7r 6 107r 2 5r 6 3r 4 7r 6 1r 1 116r 6 2r 2 7r 6
107r 2 5r 6 3r 4 7r 6 1r 1 116r 6 3r 2 6r 6 107r 2 5r 6 2r 4
7r 6 2r 1 117r 6 2r 2 6r 6 109r 2 2r 6 3r 4 7r 6 2r 1 117r 6
2r 2 7r 6 107r 1 6 6r 4 7r 6 1r 1 118r 6 2r 2 7r 6 106r 1 4r 6
3r 4 7r 6 1r 1 119r 6 1r 2 7r 6 106r 1 5r 6 1r 4 7r 6 2r 1 119r 6
2r 2 6r 6 106r 1 5r 6 1r 4 7r 6 2r 1 119r 6 2r 2 6r 6 105r 1
6r 6 1r 4 7r 6 1r 1 120r 6 2r 2 5r 6 106r 1 6r 6 1r 4 7r 6 1r 1
120r 6 2r 2 1r 6 2r 1 2r 6 104r 1 6r 6 1r 4 6r 6 2r 1 120r 6
4r 1 6r 6 102r 1 5r 3 1 6 4 7r 6 2r 1 121r 6 2r 1 7r 6 102r 1
5r 3 1 6 4 7r 6 2r 1 121r 6 2r 1 7r 6 102r 1 5r 3 1 6 4 7r 6
2r 1 121r 6 2r 1 7r 6 101r 1 6r 3 1 6 4 7r 6 2r 1 121r 6 2r 1
7r 6 101r 1 6r 3 6 1r 4 7r 6 2r 1 121r 6 2r 1 8r 6 100r 1 5r 3
1r 6 1r 4 7r 6 2r 1 121r 6 2r 1 8r 6 99r 1 6r 3 1 6 1r 4 7r 6
2r 1 121r 6 2r 1 8r 6 99r 1 6r 3 1 6 2r 4 6r 6 7r 1 116r 6 2r 1
8r 6 98r 1 7r 3 1 6 2r 4 6r 6 11r 1 30r 6 14r 1 66r 6 2r 1 3
1 6r 6 98r 1 7r 3 1 6 2r 4 6r 6 11r 1 29r 6 71r 1 9r 6 3r 3
1r 1 7r 6 97r 1 7r 3 1 6 2r 4 6r 6 11r 1 28r 6 86r 3 1r 1 7r 6
97r 1 9r 6 2r 4 6r 6 11r 1 27r 6 86r 1 3 1r 1 7r 6 96r 1 10r 6
2r 4 6r 6 11r 1 27r 6 86r 1 3 1r 1 7r 6 96r 1 10r 6 2r 4 6r 6
11r 1 26r 6 87r 1 3 1r 1 7r 6 96r 1 10r 6 2r 4 6r 6 11r 1 25r 6
88r 1 3 1r 1 8r 6 94r 1 11r 6 2r 4 6r 6 11r 1 25r 6 88r 3 1r 1
9r 6 94r 1 11r 6 2r 4 6r 6 11r 1 25r 6 88r 3 1r 1 9r 6 94r 1
11r 6 2r 4 6r 6 10r 1 26r 6 88r 1 3 1 9r 6 93r 1 12r 6 2r 4
6r 6 10r 1 25r 6 89r 1 11r 6 93r 1 12r 6 2r 4 6r 6 10r 1 25r 6
88r 1 12r 6 93r 1 12r 6 2r 4 6r 6 9r 1 25r 6 89r 1 13r 6 92r 1
12r 6 2r 4 6r 6 9r 1 25r 6 10r 1 1r 6 1 2r 6 72r 1 13r 6 91r 1
13r 6 2r 4 6r 6 8r 1 25r 6 8r 1 51r 6 29r 1 13r 6 91r 1 13r 6
2r 4 6r 6 8r 1 25r 6 9r 1 50r 6 29r 1 13r 6 91r 1 13r 6 2r 4
6r 6 8r 1 24r 6 11r 1 48r 6 29r 1 14r 6 91r 1 13r 6 3r 4 5r 6
8r 1 24r 6 15r 1 43r 6 30r 1 14r 6 90r 1 15r 6 2r 4 5r 6 8r 1
23r 6 16r 1 42r 6 31r 1 14r 6 90r 1 15r 6 2r 4 5r 6 8r 1 23r 6
29r 1 29r 6 12r 1 4r 6 12r 1 15r 6 90r 1 15r 6 2r 4 5r 6 7r 1
23r 6 36r 1 25r 6 2r 1 12r 6 12r 1 15r 6 90r 1 15r 6 2r 4 5r 6
8r 1 21r 6 16r 1 11r 6 11r 1 39r 6 11r 1 16r 6 88r 1 16r 6 2r 4
5r 6 9r 1 19r 6 15r 1 16r 6 8r 1 39r 6 10r 1 17r 6 88r 1 17r 6
2r 4 5r 6 8r 1 18r 6 15r 1 22r 6 3r 1 39r 6 10r 1 17r 6 88r 1
17r 6 2r 4 5r 6 9r 1 15r 6 16r 1 24r 6 2r 1 40r 6 9r 1 17r 6
88r 1 17r 6 2r 4 5r 6 10r 1 13r 6 17r 1 24r 6 2r 1 40r 6 8r 1
18r 6 87r 1 19r 6 1r 4 5r 6 10r 1 11r 6 20r 1 23r 6 2r 1 39r 6
9r 3 1r 1 16r 6 87r 1 19r 6 1r 4 5r 6 10r 1 9r 6 21r 1 25r 6
1r 1 39r 6 8r 1 3 1 17r 6 87r 1 16r 3 1 1r 6 2r 4 5r 6 9r 1
7r 6 23r 1 25r 6 1 40r 6 7r 1 3 1r 1 17r 6 87r 1 16r 3 1r 1
1r 6 1r 4 5r 6 9r 1 4r 6 26r 1 25r 6 1 40r 6 7r 1 3 1 19r 6
86r 1 16r 3 2r 1 6 1r 4 6r 6 40r 1 25r 6 1 39r 6 7r 1 3 1r 1
19r 6 86r 1 17r 3 1r 1 6 1r 4 6r 6 37r 4 6 1r 1 25r 6 1 39r 6
7r 1 3 1r 1 19r 6 86r 1 17r 3 2r 1 6 1r 4 5r 6 36r 4 1r 6 1r 1
7r 3 6r 1 10r 6 1 39r 6 7r 1 3 1 20r 6 85r 1 19r 3 1r 1 6 1r 4
6r 6 35r 4 1r 6 1r 1 5r 3 10r 1 8r 6 1 3r 6 5r 1 29r 6 6r 1
3 1r 1 20r 6 85r 1 19r 3 2r 1 6 4 6r 6 35r 4 1r 6 1r 1 4r 3
12r 1 7r 6 1r 1 6 8r 1 27r 6 6r 1 24r 6 85r 1 20r 3 1r 1 6 1r 4
5r 6 35r 4 1r 6 1r 1 4r 3 13r 1 6r 6 12r 1 26r 6 6r 1 24r 6
86r 1 20r 3 1r 1 6 4 6r 6 33r 4 2r 6 1r 1 3r 3 15r 1 6r 6 10r 1
27r 6 5r 1 25r 6 86r 1 21r 3 1 6 4 6r 6 33r 4 1r 6 2r 1 3r 3
16r 1 5r 6 10r 1 26r 6 6r 1 25r 6 86r 1 23r 6 1r 4 6r 6 32r 4
1r 6 2r 1 3r 3 16r 1 5r 6 10r 1 26r 6 5r 1 26r 6 86r 1 24r 6
4 6r 6 31r 4 2r 6 2r 1 3r 3 16r 1 5r 6 11r 1 24r 6 6r 1 26r 6
86r 1 24r 6 1r 4 6r 6 30r 4 1r 6 2r 1 3r 3 17r 1 5r 6 11r 1
23r 6 6r 1 27r 6 86r 1 25r 6 1r 4 6r 6 29r 4 1r 6 2r 1 3r 3
18r 1 4r 6 12r 1 22r 6 5r 1 27r 6 87r 1 25r 6 1r 4 6r 6 28r 4
2r 6 2r 1 3r 3 18r 1 4r 6 12r 1 21r 6 5r 1 28r 6 88r 1 25r 6
1r 4 6r 6 27r 4 2r 6 1r 1 4r 3 18r 1 4r 6 12r 1 20r 6 5r 1 29r 6
88r 1 26r 6 4 7r 6 26r 4 2r 6 1r 1 4r 3 18r 1 5r 6 11r 1 19r 6
6r 1 29r 6 88r 1 26r 6 1r 4 7r 6 24r 4 2r 6 2r 1 4r 3 18r 1
5r 6 12r 1 17r 6 6r 1 29r 6 90r 1 26r 6 4 8r 6 22r 4 3r 6 1r 1
5r 3 18r 1 5r 6 12r 1 16r 6 6r 1 30r 6 90r 1 27r 6 4 7r 6 21r 4
3r 6 2r 1 5r 3 18r 1 5r 6 13r 1 14r 6 5r 1 32r 6 90r 1 28r 6
4 8r 6 19r 4 3r 6 1r 1 6r 3 18r 1 6r 6 12r 1 13r 6 5r 1 32r 6
92r 1 27r 6 1r 4 8r 6 16r 4 3r 6 2r 1 7r 3 18r 1 7r 6 12r 1
11r 6 5r 1 33r 6 92r 1 29r 4 10r 6 13r 4 4r 6 1r 1 8r 3 18r 1
7r 6 13r 1 8r 6 6r 1 33r 6 94r 1 29r 4 11r 6 8r 4 6r 6 1r 1
9r 3 18r 1 8r 6 12r 1 7r 6 6r 1 3 1r 1 30r 6 96r 1 29r 4 12r 6
3r 4 8r 6 1r 1 9r 3 19r 1 9r 6 13r 1 6 9r 1 1r 3 2r 1 30r 6
96r 1 30r 6 4 21r 6 2r 1 10r 3 19r 1 10r 6 22r 1 3 3r 1 30r 6
98r 1 31r 6 4 18r 6 2r 1 11r 3 19r 1 12r 6 18r 1 1r 3 3r 1 30r 6
100r 1 25r 3 3r 1 3r 4 14r 6 3r 1 12r 3 19r 1 14r 6 15r 1 1r 3
3r 1 31r 6 101r 1 25r 3 5r 1 1r 6 1r 4 8r 6 4r 1 14r 3 19r 1
17r 6 8r 1 4r 3 3r 1 31r 6 102r 1 26r 3 6r 1 1r 6 11r 1 16r 3
19r 1 31r 3 1r 1 32r 6 104r 1 27r 3 5r 1 4r 6 3r 1 21r 3 18r 1
30r 3 1r 1 32r 6 107r 1 28r 3 4r 1 28r 3 18r 1 11r 3 2r 1 48r 6
110r 1 31r 3 1r 1 28r 3 17r 1 10r 3 4r 1 45r 6 114r 1 61r 3
15r 1 13r 3 4r 1 41r 6 118r 1 71r 3 1r 1 17r 3 1r 1 40r 6 122r 1
38r 3 5r 1 85r 6 128r 1 35r 3 1r 1 85r 6 134r 1 118r 6 140r 1
110r 6 148r 1 100r 6 161r 1 88r 6 176r 1 11r 6 44r 1 13r 6
31935r 2
22r 6 227r 2 33r 6 218r 2 63r 6 188r 2 72r 6 180r 2 79r 6 173r 2
83r 6 169r 2 88r 6 165r 2 24r 6 12r 2 53r 6 161r 2 18r 6 33r 2
42r 6 158r 2 13r 6 17r 1 27r 6 6r 2 31r 6 155r 2 11r 6 17r 1
43r 6 7r 2 19r 6 152r 2 9r 6 17r 1 53r 6 6r 2 14r 6 150r 2 8r 6
3r 4 1r 6 11r 1 59r 6 5r 2 13r 6 147r 2 8r 6 2r 4 3r 6 9r 1
65r 6 4r 2 11r 6 145r 2 7r 6 3r 4 3r 6 8r 1 70r 6 3r 2 10r 6
143r 2 7r 6 2r 4 4r 6 7r 1 74r 6 3r 2 9r 6 141r 2 6r 6 2r 4
5r 6 6r 1 78r 6 2r 2 9r 6 139r 2 6r 6 2r 4 5r 6 5r 1 82r 6 2r 2
8r 6 138r 2 5r 6 2r 4 5r 6 4r 1 85r 6 2r 2 8r 6 136r 2 5r 6
2r 4 5r 6 3r 1 88r 6 2r 2 8r 6 134r 2 6r 6 1r 4 5r 6 3r 1 90r 6
3r 2 7r 6 132r 2 1r 3 2 3r 6 1r 4 6r 6 2r 1 92r 6 3r 2 7r 6
130r 2 1r 3 1r 2 2r 6 1r 4 6r 6 2r 1 94r 6 3r 2 7r 6 129r 2
3 1r 2 2r 6 1r 4 6r 6 2r 1 95r 6 4r 2 7r 6 127r 2 3 1r 2 3r 6
4 7r 6 1r 1 97r 6 3r 2 8r 6 125r 2 1r 3 2 3r 6 4 7r 6 1r 1 99r 6
3r 2 7r 6 124r 2 6r 6 1r 4 6r 6 2r 1 99r 6 4r 2 7r 6 123r 2
5r 6 1r 4 7r 6 1r 1 101r 6 4r 2 7r 6 121r 2 6r 6 1r 4 6r 6 2r 1
102r 6 3r 2 7r 6 121r 2 5r 6 1r 4 7r 6 1r 1 103r 6 4r 2 7r 6
119r 2 5r 6 2r 4 7r 6 1r 1 104r 6 3r 2 7r 6 118r 2 6r 6 1r 4
7r 6 1r 1 105r 6 4r 2 7r 6 117r 2 5r 6 2r 4 7r 6 1r 1 106r 6
3r 2 7r 6 116r 2 5r 6 2r 4 7r 6 1r 1 107r 6 4r 2 7r 6 115r 2
5r 6 2r 4 7r 6 1r 1 108r 6 3r 2 7r 6 114r 2 5r 6 2r 4 7r 6 2r 1
108r 6 3r 2 7r 6 114r 2 5r 6 2r 4 7r 6 1r 1 110r 6 3r 2 7r 6

112r 2 5r 6 2r 4 8r 6 1r 1 110r 6 3r 2 7r 6 112r 2 5r 6 2r 4 7r 6 1r 1 112r 6 3r 2 6r 6 111r 2 5r 6 2r 4 8r 6 1r 1 112r 6 3r 2 7r 6 110r 2 5r 6 2r 4 8r 6 1r 1 113r 6 2r 2 7r 6 109r 2 5r 6 3r 4 8r 6 1 114r 6 3r 2 6r 6 109r 2 5r 6 2r 4 8r 6 1r 1 115r 6 2r 2 7r 6 107r 2 5r 6 3r 4 8r 6 1r 1 115r 6 2r 2 7r 6 107r 2 5r 6 3r 4 8r 6 1 116r 6 3r 2 6r 6 107r 2 5r 6 2r 4 9r 6 1 117r 6 2r 2 6r 6 109r 2 2r 6 3r 4 9r 6 1 117r 6 2r 2 7r 6 107r 1 6 6r 4 9r 6 1 117r 6 3r 2 6r 6 106r 1 4r 6 2r 4 10r 6 1 118r 6 2r 2 6r 6 106r 1 5r 6 1r 4 9r 6 1r 1 118r 6 2r 2 6r 6 106r 1 5r 6 1r 4 9r 6 1r 1 118r 6 2r 2 7r 6 104r 1 6r 6 1r 4 9r 6 1r 1 118r 6 2r 2 7r 6 104r 1 6r 6 1r 4 9r 6 1r 1 118r 6 2r 2 3r 6 1 2r 6 104r 1 6r 6 1r 4 9r 6 1r 1 118r 6 4r 1 6r 6 102r 1 7r 6 4 10r 6 1r 1 118r 6 3r 1 7r 6 102r 1 5r 3 1 6 4 10r 6 1r 1 119r 6 2r 1 7r 6 102r 1 5r 3 1 6 4 10r 6 1r 1 119r 6 2r 1 7r 6 101r 1 6r 3 1 6 4 10r 6 1r 1 119r 6 2r 1 8r 6 100r 1 6r 3 1 6 4 10r 6 1r 1 119r 6 2r 1 8r 6 99r 1 7r 3 6 1r 4 10r 6 1r 1 118r 6 3r 1 8r 6 99r 1 7r 3 6 1r 4 10r 6 5r 1 114r 6 3r 1 8r 6 99r 1 8r 6 1r 4 10r 6 11r 1 27r 6 10r 1 69r 6 3r 1 9r 6 97r 1 7r 3 1 6 1r 4 10r 6 12r 1 24r 6 71r 1 10r 6 3r 1 9r 6 97r 1 7r 3 1 6 1r 4 10r 6 12r 1 23r 6 87r 1 3 1 7r 6 97r 1 7r 3 1 6 1r 4 10r 6 12r 1 23r 6 87r 3 1r 1 7r 6 96r 1 8r 3 1 6 1r 4 10r 6 12r 1 22r 6 87r 1 3 1r 1 7r 6 96r 1 10r 6 1r 4 10r 6 12r 1 21r 6 88r 1 3 1r 1 7r 6 96r 1 10r 6 1r 4 10r 6 12r 1 21r 6 88r 1 3 1r 1 8r 6 94r 1 11r 6 1r 4 10r 6 12r 1 21r 6 88r 3 2r 1 8r 6 94r 1 11r 6 1r 4 10r 6 11r 1 21r 6 89r 3 1r 1 9r 6 94r 1 11r 6 1r 4 10r 6 11r 1 21r 6 89r 3 1r 1 9r 6 93r 1 12r 6 1r 4 10r 6 11r 1 21r 6 88r 1 3 1r 1 9r 6 93r 1 12r 6 2r 4 9r 6 11r 1 20r 6 89r 1 13r 6 92r 1 12r 6 2r 4 9r 6 10r 1 21r 6 89r 1 13r 6 92r 1 12r 6 2r 4 9r 6 9r 1 21r 6 15r 1 1r 6 72r 1 13r 6 91r 1 13r 6 2r 4 9r 6 9r 1 21r 6 11r 1 47r 6 30r 1 13r 6 91r 1 13r 6 2r 4 9r 6 9r 1 21r 6 13r 1 45r 6 30r 1 13r 6 91r 1 13r 6 2r 4 9r 6 8r 1 21r 6 15r 1 43r 6 30r 1 14r 6 91r 1 14r 6 1r 4 9r 6 8r 1 21r 6 16r 1 41r 6 31r 1 14r 6 90r 1 15r 6 1r 4 8r 6 8r 1 21r 6 17r 1 40r 6 32r 1 14r 6 90r 1 15r 6 1r 4 8r 6 8r 1 21r 6 28r 1 28r 6 33r 1 14r 6 90r 1 15r 6 1r 4 8r 6 8r 1 20r 6 36r 1 20r 6 33r 1 16r 6 89r 1 15r 6 2r 4 7r 6 8r 1 20r 6 15r 1 10r 6 12r 1 16r 6 34r 1 16r 6 88r 1 17r 6 1r 4 8r 6 7r 1 19r 6 14r 1 14r 6 10r 1 15r 6 35r 1 16r 6 88r 1 17r 6 1r 4 8r 6 8r 1 17r 6 14r 1 21r 6 4r 1 13r 6 36r 1 17r 6 88r 1 17r 6 1r 4 8r 6 8r 1 15r 6 16r 1 22r 6 3r 1 11r 6 38r 1 17r 6 88r 1 17r 6 1r 4 8r 6 9r 1 13r 6 17r 1 23r 6 2r 1 8r 6 40r 1 18r 6 87r 1 19r 6 1r 4 7r 6 9r 1 11r 6 19r 1 23r 6 2r 1 7r 6 8r 1 3r 6 28r 1 18r 6 87r 1 19r 6 1r 4 7r 6 9r 1 9r 6 18r 4 6 1r 1 24r 6 1r 1 6r 6 8r 1 9r 6 2r 1 2r 6 16r 1 3 1 17r 6 87r 1 19r 6 1r 4 7r 6 9r 1 7r 6 20r 4 1r 6 1 24r 6 1 6r 6 9r 1 18r 6 13r 3 1r 1 18r 6 86r 1 20r 6 1r 4 7r 6 9r 1 4r 6 22r 4 1r 1 25r 6 1 5r 6 9r 1 19r 6 12r 1 3 1r 1 18r 6 86r 1 17r 3 1 1r 6 1r 4 7r 6 37r 4 1r 1 25r 6 1 4r 6 10r 1 19r 6 11r 1 3 1r 1 19r 6 86r 1 17r 3 1r 1 6 1r 4 7r 6 36r 4 2r 1 25r 6 1 2r 6 13r 1 18r 6 11r 1 3 1r 1 19r 6 86r 1 17r 3 2r 1 6 4 7r 6 36r 4 2r 1 7r 3 6r 1 10r 6 1 1r 6 14r 1 18r 6 10r 1 3 1r 1 20r 6 85r 1 18r 3 2r 1 6 1r 4 7r 6 35r 4 2r 1 6r 3 9r 1 8r 6 17r 1 18r 6 10r 1 3 1r 1 20r 6 85r 1 19r 3 2r 1 6 4 7r 6 34r 4 3r 1 5r 3 11r 1 7r 6 17r 1 18r 6 9r 1 1r 3 1 21r 6

85r 1 20r 3 1r 1 6 4 7r 6 34r 4 3r 1 4r 3 13r 1 6r 6 17r 1 17r 6 10r 1 24r 6 85r 1 20r 3 2r 1 6 4 7r 6 33r 4 3r 1 3r 3 15r 1 5r 6 17r 1 17r 6 6r 5 6 1r 1 25r 6 86r 1 20r 3 1r 1 6 4 7r 6 33r 4 2r 6 1 3r 3 16r 1 4r 6 17r 1 16r 6 6r 5 6 2r 1 25r 6 86r 1 21r 3 1r 1 6 4 7r 6 31r 4 3r 6 1 3r 3 16r 1 5r 6 16r 1 15r 6 6r 5 1r 6 1r 1 26r 6 86r 1 22r 3 1 6 4 7r 6 31r 4 3r 1 3r 3 17r 1 5r 6 16r 1 13r 6 7r 5 1r 6 2r 1 26r 6 86r 1 25r 6 4 7r 6 30r 4 2r 6 1 3r 3 18r 1 4r 6 16r 1 12r 6 8r 5 1r 6 1r 1 27r 6 86r 1 25r 6 4 8r 6 28r 4 3r 6 1 3r 3 18r 1 4r 6 16r 1 12r 6 7r 5 1r 6 1r 1 27r 6 87r 1 25r 6 1r 4 8r 6 27r 4 3r 6 1 3r 3 18r 1 4r 6 15r 1 12r 6 7r 5 1r 6 1r 1 28r 6 88r 1 25r 6 4 9r 6 26r 4 2r 6 1 4r 3 18r 1 4r 6 15r 1 12r 6 6r 5 2r 6 1 29r 6 88r 1 26r 6 4 8r 6 25r 4 2r 6 1r 1 4r 3 18r 1 4r 6 16r 1 10r 6 6r 5 2r 6 1r 1 29r 6 88r 1 26r 6 1r 4 8r 6 24r 4 2r 6 1r 1 4r 3 18r 1 5r 6 15r 1 9r 6 6r 5 2r 6 1r 1 29r 6 90r 1 26r 6 4 10r 6 21r 4 2r 6 1r 1 5r 3 18r 1 5r 6 16r 1 6r 6 7r 5 2r 6 1r 1 30r 6 90r 1 27r 6 4 9r 6 20r 4 3r 6 1r 1 5r 3 18r 1 5r 6 16r 1 5r 6 7r 5 2r 6 1 32r 6 90r 1 28r 6 4 10r 6 17r 4 3r 6 1r 1 6r 3 18r 1 6r 6 16r 1 2r 6 8r 5 2r 6 1 32r 6 92r 1 27r 6 1r 4 11r 6 14r 4 4r 6 1r 1 6r 3 18r 1 6r 6 26r 5 3r 6 1 33r 6 92r 1 29r 6 4 10r 4 5r 6 1r 1 7r 3 18r 1 7r 6 24r 5 3r 6 1 33r 6 94r 1 29r 6 4 14r 6 3r 4 8r 6 1r 1 8r 3 18r 1 8r 6 20r 5 4r 6 1r 1 34r 6 94r 1 30r 6 4 25r 6 1r 1 9r 3 18r 1 9r 6 18r 5 4r 6 1r 1 3 1r 1 31r 6 96r 1 30r 6 4 23r 6 1r 1 9r 3 19r 1 10r 6 22r 1 1r 3 2r 1 30r 6 98r 1 31r 6 4 19r 6 1r 1 11r 3 19r 1 11r 6 19r 1 1r 3 3r 1 31r 6 99r 1 32r 6 4 14r 6 3r 1 12r 3 19r 1 13r 6 16r 1 3 4r 1 31r 6 100r 1 27r 3 3r 1 2r 6 4 9r 6 4r 1 14r 3 19r 1 17r 6 9r 1 3r 3 3r 1 31r 6 102r 1 26r 3 6r 1 1r 6 11r 1 17r 3 18r 1 30r 3 3r 1 31r 6 104r 1 26r 3 7r 1 2r 6 5r 1 20r 3 18r 1 29r 3 2r 1 32r 6 106r 1 27r 3 6r 1 28r 3 18r 1 10r 3 2r 1 14r 3 1r 1 32r 6 110r 1 28r 3 6r 1 26r 3 17r 1 9r 3 4r 1 46r 6 114r 1 30r 3 1r 1 28r 3 15r 1 11r 3 5r 1 42r 6 118r 1 44r 3 2r 1 23r 3 1r 1 16r 3 2r 1 40r 6 122r 1 39r 3 5r 1 84r 6 127r 1 36r 3 3r 1 84r 6 133r 1 118r 6 139r 1 112r 6 147r 1 101r 6 160r 1 89r 6 175r 1 14r 6 1r 1 2r 6 35r 1 16r 6 31934r 2 20r 6 229r 2 31r 6 219r 2 40r 6 4r 2 15r 6 191r 2 71r 6 180r 2 78r 6 174r 2 83r 6 170r 2 86r 6 166r 2 25r 6 8r 2 56r 6 162r 2 18r 6 28r 2 46r 6 158r 2 14r 6 19r 1 6r 6 20r 2 35r 6 155r 2 11r 6 3r 4 6 15r 1 38r 6 4r 2 23r 6 153r 2 10r 6 3r 4 3r 6 10r 1 50r 6 6r 2 15r 6 150r 2 9r 6 3r 4 4r 6 8r 1 57r 6 5r 2 14r 6 147r 2 8r 6 2r 4 6r 6 7r 1 62r 6 5r 2 12r 6 145r 2 7r 6 2r 4 7r 6 6r 1 67r 6 4r 2 11r 6 143r 2 7r 6 1r 4 8r 6 6r 1 70r 6 4r 2 10r 6 141r 2 6r 6 2r 4 7r 6 6r 1 74r 6 4r 2 9r 6 140r 2 5r 6 2r 4 6r 6 6r 1 78r 6 4r 2 8r 6 138r 2 5r 6 1r 4 7r 6 6r 1 80r 6 4r 2 8r 6 136r 2 5r 6 2r 4 6r 6 5r 1 84r 6 3r 2 8r 6 134r 2 6r 6 1r 4 6r 6 5r 1 86r 6 3r 2 8r 6 132r 2 1r 3 1r 2 2r 6 1r 4 6r 6 4r 1 89r 6 4r 2 7r 6 131r 2 3 1r 2 2r 6 2r 4 6r 6 3r 1 91r 6 4r 2 7r 6 129r 2 3 2r 2 1r 6 2r 4 6r 6 3r 1 93r 6 3r 2 8r 6 127r 2 3 2r 2 2r 6 1r 4 6r 6 3r 1 95r 6 3r 2 8r 6 125r 2 1r 3 1r 2 2r 6 2r 4 6r 6 3r 1 97r 6 4r 2 7r 6 123r 2 1r 3 2 2r 6 2r 4 6r 6 3r 1 99r 6 3r 2 8r 6 121r 2 1r 3 1r 2 2r 6 1r 4 6r 6 3r 1 101r 6 3r 2 7r 6 121r 2 1r 3 2 2r 6 2r 4 6r 6 2r 1 103r 6 3r 2 7r 6 119r 2 5r 6 2r 4 7r 6 2r 1 103r 6 3r 2 7r 6 118r 2 6r 6 1r 4 7r 6 2r 1 105r 6

3r 2 7r 6 117r 2 5r 6 2r 4 7r 6 1r 1 106r 6 3r 2 7r 6 116r 2 5r 6 2r 4 8r 6 1r 1 107r 6 3r 2 7r 6 115r 2 5r 6 2r 4 7r 6 1r 1 108r 6 3r 2 7r 6 114r 2 5r 6 3r 4 7r 6 1r 1 109r 6 2r 2 7r 6 114r 2 5r 6 2r 4 8r 6 1r 1 109r 6 3r 2 7r 6 112r 2 5r 6 3r 4 7r 6 1r 1 110r 6 3r 2 7r 6 112r 2 5r 6 2r 4 8r 6 1r 1 111r 6 3r 2 6r 6 111r 2 5r 6 3r 4 8r 6 1r 1 111r 6 3r 2 7r 6 110r 2 5r 6 3r 4 7r 6 2r 1 112r 6 2r 2 7r 6 109r 2 5r 6 3r 4 8r 6 1r 1 113r 6 3r 2 6r 6 109r 2 5r 6 3r 4 8r 6 1r 1 114r 6 2r 2 7r 6 107r 2 6r 6 3r 4 8r 6 1r 1 114r 6 2r 2 7r 6 107r 2 5r 6 3r 4 8r 6 2r 1 114r 6 3r 2 6r 6 107r 2 5r 6 3r 4 8r 6 1r 1 116r 6 2r 2 6r 6 117r 4 8r 6 1r 1 116r 6 2r 2 7r 6 106r 1 1r 6 7r 4 8r 6 1r 1 116r 6 3r 2 6r 6 106r 1 4r 6 3r 4 9r 6 1r 1 116r 6 3r 2 6r 6 106r 1 6r 6 1r 4 9r 6 1r 1 117r 6 2r 2 6r 6 106r 1 5r 6 2r 4 9r 6 1r 1 117r 6 2r 2 6r 6 105r 1 6r 6 2r 4 9r 6 1r 1 117r 6 2r 2 5r 6 106r 1 6r 6 1r 4 10r 6 1r 1 117r 6 3r 2 6 2r 1 2r 6 104r 1 6r 6 1r 4 10r 6 1r 1 117r 6 5r 1 5r 6 102r 1 7r 6 1r 4 10r 6 1r 1 117r 6 3r 1 7r 6 102r 1 7r 6 1r 4 9r 6 2r 1 117r 6 3r 1 7r 6 102r 1 7r 6 1r 4 9r 6 2r 1 117r 6 3r 1 7r 6 101r 1 6r 3 1 6 1r 4 9r 6 2r 1 117r 6 3r 1 8r 6 100r 1 6r 3 1 6 1r 4 10r 6 2r 1 116r 6 3r 1 8r 6 99r 1 7r 3 1 6 1r 4 9r 6 3r 1 116r 6 3r 1 8r 6 99r 1 7r 3 6 2r 4 10r 6 3r 1 115r 6 3r 1 8r 6 99r 1 7r 3 6 2r 4 10r 6 13r 1 23r 6 6r 1 74r 6 3r 1 9r 6 97r 1 8r 3 6 2r 4 10r 6 15r 1 20r 6 69r 1 12r 6 3r 1 9r 6 97r 1 7r 3 1r 6 2r 4 10r 6 15r 1 18r 6 88r 1 9r 6 97r 1 7r 3 1r 6 2r 4 10r 6 15r 1 17r 6 89r 1 9r 6 96r 1 8r 3 1 6 2r 4 10r 6 16r 1 15r 6 89r 1 3 1r 1 7r 6 96r 1 8r 3 1 6 2r 4 10r 6 15r 1 16r 6 89r 1 3 1r 1 8r 6 95r 1 8r 3 1 6 1r 4 11r 6 15r 1 15r 6 90r 1 3 1r 1 8r 6 94r 1 9r 3 1 6 1r 4 11r 6 15r 1 15r 6 90r 3 2r 1 8r 6 94r 1 11r 6 1r 4 11r 6 16r 1 14r 6 90r 3 2r 1 8r 6 94r 1 11r 6 1r 4 11r 6 16r 1 14r 6 89r 1 3 1r 1 9r 6 93r 1 12r 6 1r 4 11r 6 15r 1 15r 6 89r 1 3 1r 1 9r 6 93r 1 12r 6 1r 4 11r 6 15r 1 15r 6 89r 1 3 1r 1 10r 6 92r 1 12r 6 1r 4 11r 6 14r 1 15r 6 90r 1 3 1 11r 6 92r 1 12r 6 1r 4 11r 6 14r 1 15r 6 90r 1 13r 6 91r 1 13r 6 2r 4 10r 6 13r 1 15r 6 15r 1 43r 6 31r 1 13r 6 91r 1 14r 6 1r 4 10r 6 12r 1 16r 6 15r 1 43r 6 30r 1 14r 6 91r 1 14r 6 1r 4 10r 6 12r 1 16r 6 16r 1 41r 6 31r 1 14r 6 91r 1 14r 6 1r 4 10r 6 11r 1 16r 6 18r 1 39r 6 32r 1 14r 6 90r 1 15r 6 1r 4 9r 6 11r 1 17r 6 18r 1 38r 6 33r 1 14r 6 90r 1 15r 6 1r 4 9r 6 11r 1 17r 6 28r 1 26r 6 35r 1 14r 6 90r 1 15r 6 1r 4 9r 6 10r 1 17r 6 36r 1 18r 6 35r 1 16r 6 88r 1 16r 6 1r 4 9r 6 10r 1 17r 6 15r 1 9r 6 13r 1 14r 6 36r 1 16r 6 88r 1 17r 6 4 9r 6 10r 1 16r 6 14r 1 13r 6 11r 1 12r 6 38r 1 16r 6 88r 1 17r 6 1r 4 8r 6 10r 1 15r 6 14r 1 16r 6 9r 1 10r 6 39r 1 17r 6 88r 1 17r 6 1r 4 8r 6 10r 1 13r 6 16r 1 22r 6 3r 1 8r 6 37r 5 6 2r 1 17r 6 88r 1 17r 6 1r 4 9r 6 9r 1 12r 6 17r 1 23r 6 2r 1 7r 6 37r 5 1r 6 1r 1 18r 6 87r 1 19r 6 4 9r 6 9r 1 10r 6 19r 1 23r 6 2r 1 5r 6 39r 5 6 2r 1 18r 6 87r 1 19r 6 1r 4 8r 6 10r 1 7r 6 18r 4 6 1r 1 23r 6 2r 1 4r 6 39r 5 1r 6 1r 1 19r 6 87r 1 19r 6 1r 4 8r 6 10r 1 5r 6 19r 4 1r 6 1r 1 23r 6 1r 1 4r 6 40r 5 6 2r 1 20r 6 86r 1 20r 6 4 8r 6 10r 1 2r 6 22r 4 1r 6 1 25r 6 1 2r 6 41r 5 1r 6 1r 1 3 1 19r 6 86r 1 20r 6 1r 4 8r 6 35r 4 1r 6 1 25r 6 1 2r 6 40r 5 2r 6 1r 3 1r 1 19r 6 86r 1 20r 6 1r 4 8r 6 34r 4 2r 6 1 25r 6 44r 5 1r 6 1r 1 3 1r 1 19r 6 85r 1 18r 3 1r 1 1r 6 4 8r 6 34r 4 2r 6 1 7r 3

5r 1 11r 6 43r 5 2r 6 1 3 1r 1 20r 6 85r 1 18r 3 2r 1 6 1r 4 7r 6 34r 4 2r 6 1 6r 3 8r 1 9r 6 43r 5 2r 6 1 3 1r 1 20r 6 85r 1 19r 3 2r 1 6 4 8r 6 33r 4 2r 6 1 5r 3 11r 1 7r 6 42r 5 2r 6 1 3 1r 1 21r 6 85r 1 19r 3 2r 1 6 1r 4 7r 6 33r 4 2r 6 1 4r 3 13r 1 6r 6 42r 5 1r 6 1r 1 3 1 22r 6 85r 1 20r 3 2r 1 6 4 7r 6 32r 4 3r 6 1 3r 3 15r 1 5r 6 41r 5 2r 6 1 25r 6 85r 1 20r 3 2r 1 6 4 7r 6 32r 4 3r 6 1 3r 3 15r 1 5r 6 40r 5 2r 6 1r 1 25r 6 86r 1 20r 3 2r 1 6 4 7r 6 31r 4 3r 6 1 2r 3 17r 1 4r 6 39r 5 3r 6 1 26r 6 86r 1 21r 3 1r 1 6 4 8r 6 30r 4 2r 6 1 3r 3 17r 1 4r 6 38r 5 3r 6 1r 1 26r 6 86r 1 22r 3 1r 1 6 4 7r 6 29r 4 3r 6 1 3r 3 18r 1 4r 6 37r 5 2r 6 1r 1 27r 6 86r 1 23r 3 1 6 4 8r 6 28r 4 3r 6 1 3r 3 18r 1 4r 6 35r 5 4r 6 1 27r 6 87r 1 24r 3 1 6 4 8r 6 26r 4 4r 1 4r 3 18r 1 4r 6 34r 5 4r 6 1 28r 6 87r 1 26r 6 4 9r 6 25r 4 3r 6 1 4r 3 18r 1 4r 6 33r 5 4r 6 1 29r 6 88r 1 26r 6 4 9r 6 24r 4 2r 6 1r 1 4r 3 18r 1 4r 6 32r 5 4r 6 1r 1 29r 6 88r 1 26r 6 1r 4 8r 6 23r 4 3r 6 1r 1 4r 3 18r 1 5r 6 30r 5 4r 6 1r 1 29r 6 89r 1 27r 6 1r 4 9r 6 20r 4 4r 6 1 5r 3 18r 1 5r 6 29r 5 4r 6 1r 1 30r 6 90r 1 27r 6 4 11r 6 17r 4 4r 6 1r 1 5r 3 18r 1 5r 6 28r 5 4r 6 1r 1 31r 6 90r 1 28r 6 4 12r 6 14r 4 5r 6 1 6r 3 18r 1 6r 6 26r 5 4r 6 1 32r 6 92r 1 27r 6 1r 4 13r 6 10r 4 6r 6 1r 1 6r 3 18r 1 6r 6 25r 5 4r 6 1 33r 6 92r 1 28r 6 1r 4 14r 6 5r 4 8r 6 1r 1 7r 3 18r 1 7r 6 22r 5 5r 6 1 33r 6 94r 1 29r 6 4 27r 6 1r 1 8r 3 18r 1 8r 6 18r 5 7r 6 1 34r 6 94r 1 30r 6 4 26r 6 1 9r 3 18r 1 9r 6 15r 5 7r 6 1r 1 34r 6 96r 1 31r 4 24r 6 1 10r 3 18r 1 10r 6 14r 5 6r 6 1 1r 3 1r 1 32r 6 97r 1 31r 6 4 20r 6 1r 1 10r 3 19r 1 11r 6 20r 1 1r 3 2r 1 31r 6 98r 1 33r 6 4 16r 6 1r 1 12r 3 19r 1 13r 6 15r 1 1r 3 4r 1 31r 6 100r 1 34r 6 4 12r 6 1r 1 14r 3 19r 1 16r 6 10r 1 2r 3 4r 1 31r 6 102r 1 27r 3 4r 1 2r 6 11r 1 17r 3 18r 1 29r 3 4r 1 31r 6 104r 1 26r 3 7r 1 1r 6 6r 1 20r 3 18r 1 9r 3 1 17r 3 4r 1 31r 6 106r 1 27r 3 6r 1 28r 3 18r 1 9r 3 1r 1 15r 3 3r 1 31r 6 110r 1 26r 3 8r 1 26r 3 16r 1 10r 3 3r 1 47r 6 114r 1 27r 3 6r 1 26r 3 15r 1 10r 3 4r 1 44r 6 118r 1 45r 3 2r 1 22r 3 1r 1 15r 3 1r 1 42r 6 122r 1 41r 3 4r 1 83r 6 127r 1 37r 3 3r 1 83r 6 132r 1 119r 6 139r 1 112r 6 146r 1 102r 6 161r 1 88r 6 175r 1 23r 6 30r 1 18r 6 31933r 2 19r 6 230r 2 30r 6 221r 2 38r 6 8r 2 10r 6 193r 2 70r 6 182r 2 77r 6 174r 2 83r 6 170r 2 86r 6 166r 2 27r 6 5r 2 56r 6 163r 2 19r 6 20r 2 52r 6 159r 2 15r 6 21r 1 10r 6 8r 2 39r 6 156r 2 12r 6 20r 1 37r 6 2r 2 25r 6 153r 2 10r 6 5r 4 5r 6 9r 1 46r 6 7r 2 15r 6 150r 2 4r 6 1r 2 1r 6 4r 4 9r 6 8r 1 52r 6 5r 2 13r 6 148r 2 4r 6 1r 2 6 3r 4 11r 6 7r 1 58r 6 4r 2 2r 6 1r 2 7r 6 145r 2 7r 6 2r 4 11r 6 7r 1 63r 6 5r 2 9r 6 143r 2 7r 6 2r 4 11r 6 5r 1 68r 6 3r 2 10r 6 141r 2 6r 6 2r 4 11r 6 5r 1 72r 6 3r 2 9r 6 140r 2 5r 6 2r 4 11r 6 4r 1 76r 6 2r 2 9r 6 138r 2 5r 6 2r 4 8r 6 6r 1 79r 6 3r 2 8r 6 136r 2 5r 6 2r 4 8r 6 5r 1 83r 6 2r 2 8r 6 134r 2 1r 3 1r 2 2r 6 4 8r 6 5r 1 86r 6 2r 2 8r 6 132r 2 1r 3 2r 2 1r 6 1r 4 7r 6 4r 1 89r 6 2r 2 8r 6 131r 2 3 2r 2 1r 6 1r 4 7r 6 4r 1 90r 6 3r 2 8r 6 129r 2 3 2r 2 1r 6 2r 4 6r 6 4r 1 92r 6 3r 2 8r 6 127r 2 1r 3 1r 2 1r 6 2r 4 7r 6 3r 1 94r 6 3r 2 7r 6 126r 2 1r 3 1r 2 2r 6 1r 4 7r 6 3r 1 96r 6 3r 2 7r 6 125r 2 3 1r 2 2r 6 2r 4 7r 6 3r 1 97r 6 3r 2 7r 6 123r 2 3 2r 2 1r 6 2r 4 7r 6 3r 1 98r 6 3r 2 8r 6 121r 2 1r 3 1r 2 2r 6 2r 4 7r 6 2r 1 100r 6 3r 2 7r 6 121r 2 3 2r 2 1r 6

2r 4 7r 6 3r 1 101r 6 2r 2 8r 6 119r 2 1r 3 1r 2 1r 6 2r 4 8r 6
2r 1 102r 6 3r 2 7r 6 119r 2 1r 3 2 2r 6 2r 4 7r 6 3r 1 103r 6
3r 2 7r 6 117r 2 1r 3 1r 2 1r 6 2r 4 8r 6 2r 1 104r 6 3r 2 7r 6
116r 2 2r 3 2 1r 6 3r 4 8r 6 2r 1 105r 6 3r 2 7r 6 115r 2 2r 3
2 1r 6 2r 4 9r 6 1r 1 106r 6 3r 2 7r 6 114r 2 5r 6 3r 4 8r 6
2r 1 107r 6 2r 2 7r 6 114r 2 5r 6 2r 4 9r 6 1r 1 108r 6 3r 2
7r 6 112r 2 5r 6 3r 4 8r 6 2r 1 109r 6 2r 2 7r 6 112r 2 5r 6
3r 4 8r 6 1r 1 110r 6 2r 2 7r 6 111r 2 5r 6 3r 4 9r 6 1r 1 111r 6
2r 2 7r 6 110r 2 5r 6 3r 4 8r 6 2r 1 111r 6 2r 2 7r 6 109r 2
5r 6 3r 4 9r 6 1r 1 112r 6 3r 2 6r 6 109r 2 5r 6 3r 4 9r 6 1r 1
113r 6 2r 2 7r 6 107r 2 6r 6 3r 4 8r 6 2r 1 113r 6 2r 2 7r 6
107r 2 5r 6 3r 4 9r 6 2r 1 113r 6 3r 2 6r 6 107r 2 5r 6 3r 4
9r 6 2r 1 113r 6 3r 2 6r 6 111r 2 1r 6 3r 4 9r 6 2r 1 114r 6
2r 2 7r 6 109r 1 6 4r 4 9r 6 3r 1 114r 6 3r 2 6r 6 106r 1 5r 6
2r 4 9r 6 3r 1 114r 6 3r 2 6r 6 106r 1 6r 6 1r 4 9r 6 3r 1 114r 6
3r 2 6r 6 106r 1 6r 6 1r 4 9r 6 3r 1 114r 6 3r 2 7r 6 104r 1
6r 6 2r 4 9r 6 3r 1 114r 6 3r 2 5r 6 106r 1 6r 6 2r 4 9r 6 3r 1
114r 6 3r 2 1r 6 2r 1 2r 6 104r 1 6r 6 2r 4 9r 6 3r 1 114r 6
5r 1 6r 6 102r 1 7r 6 1r 4 10r 6 3r 1 114r 6 4r 1 7r 6 102r 1
7r 6 1r 4 10r 6 3r 1 114r 6 4r 1 7r 6 102r 1 7r 6 1r 4 10r 6
3r 1 114r 6 4r 1 7r 6 101r 1 8r 6 1r 4 10r 6 3r 1 114r 6 4r 1
8r 6 100r 1 8r 6 1r 4 10r 6 3r 1 114r 6 4r 1 8r 6 100r 1 7r 6
2r 4 10r 6 3r 1 114r 6 4r 1 8r 6 99r 1 7r 3 6 2r 4 10r 6 4r 1
113r 6 4r 1 8r 6 99r 1 7r 3 6 2r 4 11r 6 4r 1 112r 6 4r 1 8r 6
99r 1 7r 3 6 2r 4 11r 6 16r 1 19r 6 4r 1 75r 6 4r 1 9r 6 97r 1
7r 3 1r 6 2r 4 11r 6 19r 1 13r 6 69r 1 12r 6 5r 1 9r 6 97r 1
7r 3 1r 6 1r 4 12r 6 20r 1 10r 6 90r 1 9r 6 96r 1 8r 3 1r 6
1r 4 12r 6 20r 1 9r 6 91r 1 9r 6 96r 1 8r 3 1r 6 1r 4 12r 6
20r 1 8r 6 91r 1 10r 6 96r 1 8r 3 1r 6 1r 4 12r 6 20r 1 7r 6
88r 5 6 2r 1 3 1r 1 8r 6 95r 1 8r 3 1r 6 1r 4 12r 6 20r 1 7r 6
88r 5 6 2r 1 3 1r 1 8r 6 94r 1 9r 3 1r 6 1r 4 12r 6 20r 1 7r 6
88r 5 6 2r 3 2r 1 8r 6 94r 1 9r 3 1 6 1r 4 12r 6 20r 1 7r 6
88r 5 6 2r 3 2r 1 8r 6 94r 1 9r 3 1 6 1r 4 12r 6 20r 1 7r 6
87r 5 6 2r 1 3 2r 1 8r 6 93r 1 10r 3 1 6 1r 4 12r 6 20r 1 7r 6
87r 5 6 2r 1 3 1r 1 10r 6 92r 1 12r 6 1r 4 12r 6 19r 1 9r 6
86r 5 6 2r 1 3 1r 1 10r 6 92r 1 12r 6 1r 4 12r 6 18r 1 9r 6
86r 5 1r 6 2r 3 2r 1 10r 6 91r 1 13r 6 1r 4 12r 6 18r 1 9r 6
86r 5 1r 6 2r 3 1r 1 11r 6 91r 1 14r 6 1r 4 11r 6 17r 1 9r 6
17r 1 42r 6 26r 5 6 2r 1 14r 6 91r 1 14r 6 1r 4 10r 6 17r 1
10r 6 17r 1 41r 6 26r 5 1r 6 2r 1 14r 6 91r 1 14r 6 1r 4 10r 6
16r 1 11r 6 18r 1 39r 6 27r 5 1r 6 2r 1 14r 6 91r 1 14r 6 1r 4
10r 6 15r 1 12r 6 18r 1 38r 6 28r 5 1r 6 2r 1 14r 6 90r 1 15r 6
1r 4 10r 6 15r 1 11r 6 19r 1 37r 6 28r 5 2r 6 2r 1 14r 6 90r 1
15r 6 1r 4 10r 6 14r 1 12r 6 30r 1 24r 6 30r 5 1r 6 2r 1 16r 6
89r 1 15r 6 1r 4 10r 6 14r 1 12r 6 37r 1 16r 6 31r 5 1r 6 2r 1
16r 6 88r 1 16r 6 2r 4 9r 6 13r 1 12r 6 16r 1 9r 6 13r 1 12r 6
32r 5 2r 6 2r 1 16r 6 88r 1 17r 6 1r 4 9r 6 13r 1 11r 6 15r 1
13r 6 11r 1 11r 6 32r 5 3r 6 1r 1 17r 6 88r 1 17r 6 1r 4 9r 6
13r 1 10r 6 15r 1 15r 6 10r 1 9r 6 34r 5 2r 6 2r 1 17r 6 88r 1
17r 6 1r 4 9r 6 13r 1 9r 6 16r 1 22r 6 3r 1 7r 6 35r 5 3r 6
2r 1 17r 6 87r 1 18r 6 2r 4 8r 6 12r 1 8r 6 18r 1 22r 6 3r 1
5r 6 37r 5 3r 6 1r 1 18r 6 87r 1 19r 6 1r 4 8r 6 13r 1 5r 6
20r 1 23r 6 2r 1 3r 6 38r 5 3r 6 2r 1 18r 6 87r 1 19r 6 1r 4
9r 6 13r 1 2r 6 19r 4 6 1r 1 23r 6 2r 1 2r 6 39r 5 3r 6 1r 1
20r 6 86r 1 19r 6 2r 4 8r 6 36r 4 1r 1 24r 6 1r 1 2r 6 39r 5
3r 6 2r 1 20r 6 86r 1 20r 6 1r 4 8r 6 35r 4 2r 1 24r 6 2r 1
6 39r 5 4r 6 1r 1 21r 6 86r 1 20r 6 1r 4 9r 6 34r 4 2r 1 24r 6
43r 5 4r 6 1r 1 3 1 19r 6 85r 1 21r 6 1r 4 10r 6 33r 4 2r 1
24r 6 42r 5 4r 6 1r 1 3 1r 1 19r 6 85r 1 22r 6 4 10r 6 32r 4
3r 1 8r 3 4r 1 10r 6 41r 5 5r 6 1 3 1r 1 20r 6 85r 1 19r 3 1
1r 6 1r 4 9r 6 32r 4 3r 1 6r 3 8r 1 9r 6 40r 5 4r 6 1r 3 2r 1
20r 6 85r 1 19r 3 1r 1 1r 6 4 10r 6 31r 4 2r 6 1 5r 3 10r 1
8r 6 39r 5 5r 6 1 3 1r 1 21r 6 85r 1 19r 3 2r 1 6 4 10r 6 30r 4
3r 6 1 4r 3 13r 1 6r 6 1r 5 2r 6 33r 5 5r 6 1r 1 3 1r 1 21r 6
85r 1 19r 3 2r 1 1r 6 4 10r 6 29r 4 3r 6 1 3r 3 14r 1 6r 6 1r 5
2r 6 32r 5 5r 6 1r 1 3 1r 1 22r 6 85r 1 20r 3 2r 1 6 4 10r 6
29r 4 3r 6 1 3r 3 15r 1 5r 6 1r 5 2r 6 32r 5 5r 6 1r 1 3 1 23r 6
85r 1 20r 3 3r 1 6 4 9r 6 29r 4 3r 1 3r 3 17r 1 4r 6 1r 5 3r 6
30r 5 6r 6 1 26r 6 85r 1 21r 3 2r 1 6 4 9r 6 28r 4 3r 6 1 3r 3
17r 1 4r 6 1r 5 3r 6 29r 5 6r 6 1r 1 26r 6 86r 1 21r 3 2r 1
6 4 9r 6 27r 4 3r 6 1 3r 3 18r 1 3r 6 1r 5 4r 6 27r 5 6r 6 1r 1
27r 6 86r 1 22r 3 1r 1 6 4 10r 6 25r 4 4r 1 4r 3 18r 1 4r 6
5 4r 6 26r 5 6r 6 1r 1 28r 6 86r 1 23r 3 1r 1 6 4 10r 6 24r 4
3r 6 1 4r 3 18r 1 4r 6 1r 5 4r 6 24r 5 6r 6 1r 1 28r 6 87r 1
24r 3 1r 6 4 10r 6 24r 4 3r 6 1 4r 3 18r 1 4r 6 1r 5 4r 6 23r 5
6r 6 2r 1 28r 6 88r 1 24r 3 1 6 4 11r 6 21r 4 4r 1 5r 3 18r 1
4r 6 1r 5 4r 6 22r 5 6r 6 2r 1 29r 6 88r 1 27r 6 4 11r 6 20r 4
3r 6 1 5r 3 18r 1 4r 6 2r 5 3r 6 21r 5 6r 6 2r 1 30r 6 88r 1
27r 6 4 13r 6 17r 4 4r 6 1 5r 3 18r 1 5r 6 2r 5 3r 6 19r 5 6r 6
2r 1 30r 6 90r 1 27r 6 4 13r 6 14r 4 6r 6 1 5r 3 18r 1 5r 6
2r 5 4r 6 17r 5 6r 6 2r 1 31r 6 90r 1 28r 6 4 13r 6 11r 4 7r 6
1 5r 3 19r 1 5r 6 2r 5 4r 6 15r 5 7r 6 2r 1 31r 6 91r 1 29r 6
4 14r 6 7r 4 9r 1 7r 3 18r 1 6r 6 2r 5 4r 6 13r 5 7r 6 1r 1
33r 6 92r 1 28r 6 1r 4 30r 6 1 8r 3 17r 1 7r 6 1r 5 6r 6 8r 5
9r 6 1r 1 33r 6 93r 1 30r 6 4 28r 6 1 9r 3 17r 1 7r 6 3r 5 21r 6
2r 1 34r 6 94r 1 30r 6 4 26r 6 1 9r 3 18r 1 8r 6 3r 5 19r 6
2r 1 34r 6 96r 1 31r 6 4 23r 6 1 10r 3 17r 1 10r 6 3r 5 16r 6
3r 1 35r 6 96r 1 32r 6 1r 4 19r 6 1r 1 11r 3 17r 1 12r 6 4r 5
4r 6 10r 1 2r 3 1 32r 6 98r 1 33r 6 1r 4 14r 6 2r 1 12r 3 18r 1
14r 6 15r 1 2r 3 3r 1 31r 6 100r 1 34r 6 1r 4 9r 6 3r 1 14r 3
18r 1 17r 6 10r 1 2r 3 4r 1 31r 6 102r 1 35r 6 11r 1 16r 3 18r 1
29r 3 5r 1 31r 6 104r 1 28r 3 4r 1 2r 6 7r 1 19r 3 17r 1 28r 3
5r 1 31r 6 106r 1 27r 3 7r 1 27r 3 17r 1 9r 3 1r 1 15r 3 4r 1
31r 6 110r 1 26r 3 8r 1 26r 3 16r 1 10r 3 1r 1 13r 3 3r 1 31r 6
114r 1 26r 3 7r 1 14r 3 2r 1 8r 3 14r 1 11r 3 2r 1 46r 6 118r 1
27r 3 3r 1 13r 3 4r 1 82r 6 123r 1 41r 3 4r 1 83r 6 127r 1 38r 3
3r 1 82r 6 132r 1 119r 6 139r 1 112r 6 146r 1 102r 6 161r 1
89r 6 174r 1 23r 6 30r 1 18r 6 31934r 2 17r 6 231r 2 29r 6 222r 2
37r 6 11r 2 5r 6 196r 2 70r 6 182r 2 76r 6 176r 2 82r 6 170r 2
86r 6 166r 2 28r 6 2r 2 58r 6 163r 2 20r 6 17r 2 54r 6 159r 2
15r 6 2r 4 2r 6 2r 4 3r 6 30r 2 37r 6 156r 2 11r 6 2r 4 15r 6
10r 1 28r 6 8r 2 20r 6 153r 2 5r 6 2 3r 6 2r 4 15r 6 9r 1 36r 6
9r 2 16r 6 150r 2 4r 6 2r 2 6 2r 4 16r 6 8r 1 48r 6 4r 2 5r 6
2 6r 6 148r 2 3r 6 6r 4 15r 6 9r 1 53r 6 4r 2 1r 6 2r 2 7r 6
145r 2 3r 6 1r 2 1r 6 1r 4 16r 6 8r 1 55r 6 9r 2 8r 6 143r 2
4r 6 2 1r 6 1r 4 15r 6 8r 1 57r 6 8r 2 10r 6 141r 2 6r 6 2r 4
12r 6 9r 1 61r 6 9r 2 9r 6 140r 2 5r 6 2r 4 12r 6 7r 1 66r 6
9r 2 8r 6 138r 2 5r 6 2r 4 11r 6 4r 1 73r 6 8r 2 8r 6 136r 2
5r 6 2r 4 11r 6 4r 1 76r 6 7r 2 8r 6 134r 2 1r 3 1r 2 2r 6 1r 4
11r 6 4r 1 83r 6 2r 2 8r 6 132r 2 1r 3 2r 2 1r 6 1r 4 11r 6
3r 1 86r 6 2r 2 8r 6 131r 2 3 2r 2 1r 6 2r 4 10r 6 3r 1 88r 6
2r 2 8r 6 129r 2 3 2r 2 1r 6 2r 4 10r 6 3r 1 90r 6 2r 2 1r 3
2 5r 6 127r 2 1r 3 1r 2 1r 6 2r 4 10r 6 3r 1 92r 6 2r 2 3 1r 2
4r 6 126r 2 1r 3 1r 2 2r 6 1r 4 10r 6 3r 1 93r 6 3r 2 3 1r 2
4r 6 125r 2 3 2r 2 1r 6 1r 4 10r 6 4r 1 94r 6 2r 2 1r 3 2 5r 6
123r 2 1r 3 1r 2 1r 6 1r 4 11r 6 3r 1 96r 6 2r 2 7r 6 122r 2
1r 3 1r 2 2r 6 1r 4 10r 6 3r 1 98r 6 2r 2 7r 6 121r 2 3 2r 2
1r 6 1r 4 11r 6 2r 1 99r 6 2r 2 8r 6 119r 2 1r 3 1r 2 1r 6 2r 4
10r 6 3r 1 100r 6 2r 2 7r 6 119r 2 1r 3 1r 2 1r 6 1r 4 11r 6
2r 1 101r 6 2r 2 8r 6 117r 2 1r 3 1r 2 1r 6 2r 4 10r 6 3r 1
102r 6 2r 2 7r 6 116r 2 2r 3 1r 2 6 3r 4 10r 6 2r 1 103r 6 2r 2
7r 6 116r 2 2r 3 2 1r 6 2r 4 11r 6 1r 1 105r 6 2r 2 7r 6 114r 2
2r 3 1r 2 6 3r 4 11r 6 1 106r 6 2r 2 7r 6 114r 2 2r 3 1r 2 6
2r 4 11r 6 1 107r 6 3r 2 7r 6 112r 2 3r 3 2 6 3r 4 11r 6 1 108r 6
2r 2 7r 6 112r 2 3r 3 2 6 3r 4 11r 6 1 108r 6 2r 2 7r 6 111r 2
5r 6 3r 4 12r 1 110r 6 2r 2 7r 6 110r 2 5r 6 2r 4 12r 6 1 110r 6
2r 2 7r 6 109r 2 5r 6 3r 4 12r 1 111r 6 3r 2 6r 6 109r 2 5r 6
3r 4 12r 1 111r 6 3r 2 7r 6 108r 2 5r 6 3r 4 12r 1 112r 6 2r 2
7r 6 107r 2 5r 6 3r 4 12r 6 1 112r 6 3r 2 6r 6 107r 2 5r 6 3r 4
12r 1 113r 6 3r 2 6r 6 111r 2 6 4r 4 12r 1 113r 6 3r 2 7r 6
107r 1 2r 6 5r 4 12r 1 113r 6 4r 2 6r 6 106r 1 5r 6 2r 4 13r 1
113r 6 4r 2 6r 6 106r 1 6r 6 2r 4 12r 1 113r 6 4r 2 6r 6 106r 1
6r 6 1r 4 13r 1 113r 6 4r 2 6r 6 105r 1 6r 6 2r 4 13r 1 113r 6
4r 2 6r 6 105r 1 6r 6 2r 4 13r 1 113r 6 4r 2 1r 6 2r 1 2r 6
104r 1 6r 6 2r 4 14r 1 112r 6 6r 1 6r 6 102r 1 7r 6 1r 4 14r 6
1 112r 6 5r 1 7r 6 102r 1 7r 6 1r 4 15r 1 112r 6 5r 1 7r 6 102r 1
7r 6 1r 4 15r 1 112r 6 5r 1 7r 6 101r 1 8r 6 1r 4 15r 6 1 111r 6
5r 1 8r 6 100r 1 8r 6 1r 4 15r 6 1 111r 6 5r 1 8r 6 100r 1 7r 6
2r 4 15r 6 1r 1 110r 6 5r 1 8r 6 99r 1 8r 6 2r 4 15r 6 1r 1
110r 6 5r 1 8r 6 99r 1 8r 6 2r 4 14r 6 3r 1 109r 6 5r 1 8r 6
98r 1 9r 6 2r 4 14r 6 14r 1 16r 6 7r 1 73r 6 5r 1 9r 6 97r 1
8r 3 6 2r 4 14r 6 22r 1 3r 6 72r 1 13r 6 5r 1 9r 6 97r 1 8r 3
6 2r 4 14r 6 119r 1 9r 6 96r 1 8r 3 1r 6 2r 4 13r 6 120r 1 9r 6
96r 1 8r 3 1r 6 2r 4 13r 6 115r 5 6 2r 1 10r 6 96r 1 8r 3 1r 6
2r 4 13r 6 115r 5 6 2r 1 11r 6 94r 1 9r 3 1r 6 1r 4 14r 6 114r 5
1r 6 2r 1 11r 6 94r 1 9r 3 1r 6 1r 4 14r 6 114r 5 1r 6 2r 1
3 1r 1 8r 6 94r 1 10r 3 6 1r 4 14r 6 114r 5 6 3r 3 2r 1 8r 6
93r 1 10r 3 1r 6 1r 4 14r 6 114r 5 6 2r 1 3 2r 1 8r 6 93r 1
11r 3 1 6 1r 4 13r 6 114r 5 6 2r 1 3 1r 1 10r 6 92r 1 11r 3
1 6 1r 4 13r 6 113r 5 1r 6 2r 3 2r 1 10r 6 92r 1 11r 3 1 6 4
14r 6 113r 5 1r 6 1r 1 3 2r 1 10r 6 91r 1 12r 3 1 6 1r 4 13r 6
113r 5 6 2r 1 3 1r 1 11r 6 91r 1 14r 6 1r 4 13r 6 22r 1 6 19r 1
42r 6 25r 5 1r 6 2r 1 3 1r 1 11r 6 91r 1 14r 6 1r 4 13r 6 20r 1
2r 6 19r 1 41r 6 26r 5 1r 6 2r 1 3 1 12r 6 91r 1 14r 6 1r 4
13r 6 19r 1 3r 6 20r 1 39r 6 27r 5 1r 6 2r 1 14r 6 90r 1 15r 6
1r 4 13r 6 18r 1 4r 6 20r 1 37r 6 28r 5 2r 6 2r 1 14r 6 90r 1
15r 6 1r 4 13r 6 18r 1 4r 6 21r 1 35r 6 29r 5 2r 6 2r 1 14r 6
90r 1 15r 6 2r 4 12r 6 17r 1 4r 6 33r 1 22r 6 31r 5 1r 6 2r 1
16r 6 89r 1 16r 6 1r 4 12r 6 17r 1 3r 6 41r 1 14r 6 32r 5 1r 6
2r 1 16r 6 88r 1 17r 6 1r 4 12r 6 16r 1 4r 6 18r 1 9r 6 13r 1
11r 6 33r 5 2r 6 2r 1 16r 6 88r 1 17r 6 1r 4 12r 6 16r 1 3r 6
17r 1 12r 6 12r 1 9r 6 35r 5 1r 6 2r 1 17r 6 88r 1 17r 6 2r 4
11r 6 37r 1 15r 6 10r 1 7r 6 36r 5 2r 6 2r 1 17r 6 87r 1 18r 6
1r 4 12r 6 37r 1 21r 6 4r 1 5r 6 38r 5 2r 6 2r 1 17r 6 87r 1
19r 6 1r 4 12r 6 36r 1 22r 6 3r 1 4r 6 38r 5 2r 6 2r 1 18r 6
87r 1 19r 6 1r 4 12r 6 33r 4 6 1r 1 22r 6 3r 1 2r 6 40r 5 2r 6
2r 1 19r 6 86r 1 19r 6 1r 4 12r 6 32r 4 1r 6 1 24r 6 2r 1 1r 6
40r 5 2r 6 2r 1 20r 6 86r 1 19r 6 2r 4 11r 6 32r 4 1r 6 1 24r 6
2r 1 6 41r 5 2r 6 2r 1 20r 6 86r 1 20r 6 1r 4 12r 6 31r 4 1r 6
1 24r 6 45r 5 1r 6 2r 1 21r 6 85r 1 21r 6 1r 4 12r 6 31r 4 1r 6
1 24r 6 44r 5 2r 6 2r 1 21r 6 85r 1 21r 6 2r 4 11r 6 30r 4 2r 6
1 24r 6 44r 5 1r 6 2r 1 3 1 20r 6 85r 1 22r 6 1r 4 12r 6 29r 4
1r 6 1r 1 7r 3 5r 1 10r 6 2r 5 2r 6 37r 5 2r 6 1r 1 3 1r 1 20r 6
85r 1 22r 6 2r 4 11r 6 29r 4 1r 6 1r 1 6r 3 8r 1 8r 6 2r 5 2r 6
36r 5 2r 6 2r 1 3 1r 1 20r 6 85r 1 23r 6 1r 4 11r 6 29r 4 1r 6
1r 1 5r 3 10r 1 8r 6 1r 5 3r 6 35r 5 2r 6 1r 1 3 1r 1 21r 6
85r 1 20r 3 1 1r 6 1r 4 11r 6 28r 4 2r 6 1r 1 4r 3 12r 1 7r 6
1r 5 3r 6 34r 5 2r 6 2r 3 2r 1 21r 6 85r 1 20r 3 1r 1 1r 6 1r 4
11r 6 27r 4 2r 6 1r 1 4r 3 13r 1 6r 6 1r 5 4r 6 32r 5 3r 6 1r 1
3 1r 1 22r 6 85r 1 20r 3 2r 1 6 1r 4 11r 6 27r 4 2r 6 1 4r 3
15r 1 5r 6 1r 5 5r 6 31r 5 2r 6 2r 1 3 1 23r 6 85r 1 20r 3 2r 1
1r 6 1r 4 11r 6 25r 4 2r 6 1r 1 4r 3 15r 1 5r 6 1r 5 5r 6 30r 5
3r 6 1r 1 3 1 24r 6 85r 1 21r 3 2r 1 6 1r 4 12r 6 24r 4 2r 6
1r 1 3r 3 17r 1 4r 6 1r 5 5r 6 29r 5 3r 6 2r 1 26r 6 86r 1 20r 3
3r 1 6 4 13r 6 23r 4 1r 6 2r 1 3r 3 17r 1 4r 6 1r 5 5r 6 28r 5
3r 6 2r 1 27r 6 86r 1 21r 3 2r 1 6 1r 4 12r 6 23r 4 1r 6 1r 1
4r 3 17r 1 4r 6 1r 5 5r 6 26r 5 4r 6 2r 1 28r 6 86r 1 22r 3
2r 1 6 4 14r 6 20r 4 2r 6 1r 1 4r 3 17r 1 5r 6 5 6r 6 24r 5
4r 6 2r 1 28r 6 87r 1 23r 3 2r 6 1r 4 14r 6 18r 4 3r 6 1r 1
4r 3 17r 1 5r 6 5 6r 6 23r 5 5r 6 2r 1 28r 6 87r 1 24r 3 1r 1
6 1r 4 14r 6 17r 4 2r 6 1r 1 5r 3 17r 1 5r 6 5 6r 6 22r 5 5r 6
2r 1 29r 6 88r 1 24r 3 1r 1 6 4 15r 6 15r 4 3r 6 1r 1 5r 3 17r 1
5r 6 5 7r 6 20r 5 5r 6 2r 1 30r 6 88r 1 27r 6 1r 4 15r 6 13r 4
4r 6 1r 1 6r 3 17r 1 5r 6 5 7r 6 18r 5 5r 6 2r 1 30r 6 89r 1
28r 6 1r 4 16r 6 9r 4 5r 6 1r 1 3r 3 2r 1 1r 3 15r 1 6r 6 5
8r 6 16r 5 5r 6 2r 1 31r 6 90r 1 28r 6 1r 4 16r 6 7r 4 6r 6
1r 1 4r 3 2r 1 3 15r 1 6r 6 1r 5 9r 6 12r 5 6r 6 2r 1 31r 6
91r 1 29r 6 1r 4 18r 6 1r 4 8r 6 1r 1 5r 3 2r 1 3 14r 1 8r 6
5 10r 6 7r 5 10r 6 1 33r 6 92r 1 29r 6 1r 4 27r 6 2r 1 5r 3
1r 1 3 17r 1 7r 6 1r 5 25r 6 1r 1 33r 6 93r 1 30r 6 2r 4 24r 6
2r 1 6r 3 1 1r 3 18r 1 6r 6 2r 5 23r 6 1r 1 34r 6 94r 1 30r 6
3r 4 21r 6 2r 1 10r 3 17r 1 8r 6 2r 5 21r 6 1r 1 34r 6 95r 1
32r 6 2r 4 18r 6 3r 1 10r 3 17r 1 10r 6 2r 5 18r 6 1r 1 36r 6
96r 1 32r 6 2r 4 16r 6 3r 1 11r 3 16r 1 12r 6 5r 5 8r 6 5r 1
37r 6 98r 1 33r 6 1r 4 13r 6 3r 1 13r 3 16r 1 15r 6 15r 1 38r 6
100r 1 34r 6 15r 1 14r 3 18r 1 17r 6 9r 1 5r 3 1r 1 32r 6 101r 1
35r 6 12r 1 16r 3 17r 1 31r 3 3r 1 32r 6 103r 1 38r 6 6r 1 18r 3
17r 1 7r 3 1r 1 18r 3 5r 1 32r 6 106r 1 30r 3 3r 1 28r 3 16r 1
8r 3 1 17r 3 5r 1 31r 6 110r 1 27r 3 8r 1 16r 3 1r 1 6r 3 15r 1
10r 3 1 14r 3 5r 1 30r 6 114r 1 26r 3 8r 1 14r 3 2r 1 7r 3 14r 1
11r 3 1 14r 3 1 32r 6 118r 1 26r 3 5r 1 13r 3 3r 1 82r 6 123r 1
43r 3 2r 1 83r 6 127r 1 124r 6 134r 1 118r 6 139r 1 112r 6 146r 1
103r 6 160r 1 89r 6 175r 1 18r 6 34r 1 19r 6 31933r 2 16r 6
233r 2 28r 6 222r 2 36r 6 215r 2 69r 6 183r 2 76r 6 176r 2 81r 6
171r 2 86r 6 166r 2 90r 6 163r 2 20r 6 16r 2 55r 6 159r 2 16r 6
32r 2 47r 6 156r 2 12r 6 7r 4 11r 6 11r 1 3r 6 8r 1 9r 6 8r 2

23r 6 153r 2 10r 6 5r 4 16r 6 7r 1 31r 6 12r 2 16r 6 150r 2
9r 6 4r 4 18r 6 6r 1 43r 6 6r 2 13r 6 148r 2 8r 6 4r 4 20r 6
5r 1 47r 6 6r 2 12r 6 145r 2 7r 6 4r 4 21r 6 5r 1 48r 6 8r 2
11r 6 143r 2 7r 6 3r 4 20r 6 6r 1 50r 6 10r 2 10r 6 142r 2 6r 6
2r 4 20r 6 7r 1 51r 6 1r 1 3r 6 6r 2 9r 6 140r 2 5r 6 2r 4 19r 6
8r 1 60r 6 7r 2 8r 6 138r 2 5r 6 2r 4 17r 6 9r 1 63r 6 7r 2
8r 6 136r 2 5r 6 1r 4 15r 6 12r 1 66r 6 6r 2 8r 6 134r 2 2r 3
2 2r 6 1r 4 13r 6 12r 1 72r 6 3r 2 8r 6 132r 2 2r 3 1r 2 1r 6
1r 4 13r 6 11r 1 75r 6 3r 2 8r 6 131r 2 1r 3 1r 2 1r 6 1r 4
13r 6 10r 1 78r 6 3r 2 8r 6 129r 2 1r 3 1r 2 1r 6 1r 4 13r 6
10r 1 80r 6 3r 2 1r 3 2 5r 6 127r 2 1r 3 1r 2 1r 6 2r 4 12r 6
9r 1 84r 6 2r 2 3 1r 2 4r 6 126r 2 1r 3 1r 2 2r 6 1r 4 12r 6
9r 1 85r 6 3r 3 1r 2 5r 6 125r 2 3 2r 2 1r 6 1r 4 12r 6 9r 1
87r 6 2r 2 3 1r 2 5r 6 123r 2 1r 3 1r 2 1r 6 2r 4 12r 6 7r 1
90r 6 2r 2 3 2 5r 6 122r 2 1r 3 1r 2 2r 6 1r 4 12r 6 7r 1 91r 6
2r 2 3 2 6r 6 121r 2 1r 3 1r 2 1r 6 1r 4 13r 6 7r 1 92r 6 2r 2
8r 6 119r 2 1r 3 1r 2 1r 6 1r 4 14r 6 6r 1 94r 6 2r 2 7r 6 119r 2
1r 3 1r 2 1r 6 1r 4 13r 6 6r 1 95r 6 2r 2 8r 6 117r 2 1r 3 2r 2
6 1r 4 14r 6 6r 1 96r 6 2r 2 7r 6 117r 2 1r 3 1r 2 1r 6 1r 4
13r 6 6r 1 97r 6 2r 2 7r 6 116r 2 2r 3 1r 2 6 1r 4 14r 6 5r 1
98r 6 3r 2 7r 6 114r 2 2r 3 1r 2 6 2r 4 13r 6 5r 1 100r 6 2r 2
7r 6 114r 2 2r 3 1r 2 6 2r 4 13r 6 5r 1 100r 6 3r 2 7r 6 112r 2
3r 3 1r 6 3r 4 12r 6 5r 1 102r 6 2r 2 7r 6 112r 2 2r 3 1r 2
6 2r 4 13r 6 4r 1 103r 6 2r 2 7r 6 111r 2 3r 3 1r 2 6 2r 4 12r 6
4r 1 104r 6 3r 2 7r 6 110r 2 3r 3 2 6 3r 4 12r 6 3r 1 106r 6
2r 2 7r 6 110r 2 3r 3 2 6 2r 4 12r 6 3r 1 107r 6 3r 2 6r 6 109r 2
5r 6 3r 4 12r 6 3r 1 107r 6 3r 2 7r 6 108r 2 5r 6 2r 4 13r 6
2r 1 108r 6 3r 2 7r 6 107r 2 6r 6 2r 4 13r 6 1r 1 109r 6 4r 2
6r 6 107r 2 5r 6 3r 4 12r 6 2r 1 109r 6 4r 2 6r 6 109r 2 3r 6
3r 4 12r 6 1r 1 109r 6 5r 2 7r 6 107r 1 2r 6 4r 4 13r 6 1r 1
109r 6 6r 2 6r 6 106r 1 6r 6 1r 4 13r 6 1r 1 109r 6 6r 2 6r 6
106r 1 6r 6 1r 4 13r 6 1r 1 109r 6 6r 2 6r 6 106r 1 6r 6 1r 4
12r 6 2r 1 109r 6 6r 2 6r 6 105r 1 7r 6 4 13r 6 2r 1 109r 6
6r 2 5r 6 106r 1 6r 6 1r 4 13r 6 2r 1 109r 6 6r 2 2r 6 3r 1
6 104r 1 6r 6 1r 4 13r 6 2r 1 110r 6 8r 1 5r 6 102r 1 7r 6 1r 4
13r 6 3r 1 109r 6 6r 1 7r 6 102r 1 7r 6 1r 4 13r 6 3r 1 109r 6
6r 1 7r 6 102r 1 7r 6 1r 4 13r 6 4r 1 108r 6 1r 5 6 3r 1 7r 6
101r 1 8r 6 1r 4 14r 6 3r 1 108r 6 1r 5 1r 6 2r 1 8r 6 100r 1
8r 6 4 15r 6 4r 1 107r 6 1r 5 1r 6 2r 1 8r 6 100r 1 8r 6 4 15r 6
5r 1 106r 6 1r 5 1r 6 2r 1 8r 6 99r 1 9r 6 4 15r 6 5r 1 106r 6
1r 5 1r 6 2r 1 8r 6 99r 1 8r 6 1r 4 15r 6 7r 1 104r 6 1r 5 1r 6
2r 1 8r 6 98r 1 9r 6 1r 4 15r 6 17r 1 10r 6 11r 1 71r 6 1r 5
1r 6 2r 1 9r 6 97r 1 9r 6 1r 4 15r 6 98r 1 13r 6 1r 5 1r 6 2r 1
9r 6 97r 1 9r 6 1r 4 15r 6 114r 5 1r 6 2r 1 9r 6 96r 1 10r 6
1r 4 15r 6 113r 5 2r 6 2r 1 9r 6 96r 1 9r 3 6 1r 4 15r 6 113r 5
2r 6 1r 1 11r 6 95r 1 9r 3 6 1r 4 15r 6 113r 5 2r 6 1r 1 11r 6
94r 1 10r 3 6 1r 4 15r 6 112r 5 2r 6 2r 1 11r 6 94r 1 10r 3
6 1r 4 15r 6 112r 5 2r 6 2r 1 11r 6 94r 1 10r 3 1 6 4 15r 6
112r 5 2r 6 2r 1 3 1 9r 6 93r 1 10r 3 1r 1 6 4 15r 6 112r 5
2r 6 1r 1 3 2r 1 9r 6 92r 1 11r 3 1 6 1r 4 14r 6 112r 5 1r 6
2r 1 3 1r 1 10r 6 92r 1 11r 3 1 6 1r 4 14r 6 112r 5 1r 6 2r 3
2r 1 10r 6 92r 1 11r 3 1 6 1r 4 14r 6 112r 5 1r 6 1r 1 3 2r 1
10r 6 91r 1 12r 3 1 6 1r 4 14r 6 82r 1 2r 6 25r 5 2r 6 1r 1
3 1r 1 11r 6 91r 1 12r 3 1 6 1r 4 14r 6 52r 1 5r 6 1r 1 24r 6
25r 5 1r 6 2r 1 3 1r 1 11r 6 91r 1 12r 3 1 6 1r 4 14r 6 48r 1
34r 6 27r 5 1r 6 2r 1 3 1r 1 11r 6 91r 1 14r 6 1r 4 14r 6 48r 1
33r 6 28r 5 1r 6 2r 3 1r 1 12r 6 90r 1 15r 6 1r 4 14r 6 48r 1
32r 6 29r 5 1r 6 1r 1 1r 3 1 13r 6 89r 1 15r 6 1r 4 14r 6 50r 1
28r 6 30r 5 1r 6 2r 1 16r 6 89r 1 16r 6 1r 4 13r 6 58r 1 19r 6
31r 5 1r 6 2r 1 16r 6 88r 1 17r 6 1r 4 13r 6 62r 1 13r 6 32r 5
2r 6 2r 1 16r 6 88r 1 17r 6 1r 4 13r 6 39r 1 9r 6 13r 1 10r 6
34r 5 2r 6 1r 1 17r 6 88r 1 17r 6 1r 4 13r 6 37r 1 13r 6 11r 1
9r 6 35r 5 2r 6 1r 1 17r 6 88r 1 17r 6 1r 4 13r 6 36r 1 17r 6
8r 1 6r 6 37r 5 2r 6 2r 1 17r 6 87r 1 18r 6 2r 4 12r 6 36r 1
21r 6 4r 1 4r 6 39r 5 2r 6 2r 1 17r 6 87r 1 19r 6 4 13r 6 36r 1
22r 6 3r 1 3r 6 39r 5 3r 6 1r 1 19r 6 86r 1 19r 6 1r 4 12r 6
35r 1 23r 6 3r 1 2r 6 40r 5 2r 6 2r 1 19r 6 86r 1 19r 6 1r 4
12r 6 35r 1 24r 6 2r 1 1r 6 40r 5 3r 6 1r 1 20r 6 86r 1 20r 6
4 13r 6 30r 4 6 2r 1 24r 6 45r 5 2r 6 2r 1 20r 6 85r 1 21r 6
1r 4 12r 6 30r 4 1r 6 1r 1 24r 6 44r 5 3r 6 1r 1 21r 6 85r 1
21r 6 1r 4 12r 6 30r 4 1r 6 1r 1 24r 6 2r 5 1r 6 38r 5 3r 6
2r 1 21r 6 85r 1 22r 6 4 12r 6 30r 4 1r 6 1r 1 24r 6 1r 5 3r 6
37r 5 2r 6 2r 1 22r 6 85r 1 22r 6 1r 4 12r 6 28r 4 2r 6 1r 1
7r 3 5r 1 10r 6 1r 5 4r 6 35r 5 3r 6 2r 1 22r 6 85r 1 22r 6
1r 4 12r 6 28r 4 2r 6 1r 1 6r 3 8r 1 8r 6 1r 5 4r 6 35r 5 3r 6
1r 1 3 1 21r 6 85r 1 23r 6 1r 4 12r 6 27r 4 2r 6 1r 1 5r 3 10r 1
7r 6 1r 5 4r 6 33r 5 4r 6 1r 1 3 1r 1 21r 6 85r 1 23r 6 1r 4
12r 6 26r 4 3r 6 1r 1 5r 3 11r 1 7r 6 5 5r 6 32r 5 4r 6 1r 3
1r 1 22r 6 85r 1 24r 6 4 13r 6 25r 4 3r 6 1 5r 3 13r 1 6r 6
5 6r 6 30r 5 4r 6 1r 1 3 1r 1 22r 6 85r 1 24r 6 1r 4 13r 6 24r 4
3r 6 1 4r 3 15r 1 5r 5 7r 6 29r 5 5r 6 1 3 1r 1 23r 6 85r 1
21r 3 1 2r 6 4 14r 6 22r 4 3r 6 1r 1 4r 3 15r 1 5r 6 5 6r 6
28r 5 5r 6 1r 1 3 1r 1 23r 6 85r 1 21r 3 1r 1 1r 6 1r 4 14r 6
21r 4 3r 6 1r 1 4r 3 16r 1 4r 6 5 6r 6 28r 5 5r 6 1 1r 3 1 24r 6
85r 1 21r 3 2r 1 1r 6 4 15r 6 20r 4 3r 6 1r 1 4r 3 16r 1 4r 6
5 7r 6 26r 5 5r 6 1r 1 27r 6 86r 1 21r 3 2r 1 6 1r 4 15r 6 18r 4
3r 6 1r 1 4r 3 17r 1 4r 6 5 7r 6 24r 5 6r 6 1r 1 28r 6 86r 1
22r 3 2r 1 6 1r 4 16r 6 16r 4 3r 6 1r 1 4r 3 17r 1 4r 6 5 8r 6
22r 5 6r 6 1r 1 28r 6 87r 1 22r 3 3r 1 6 4 18r 6 13r 4 4r 6
1 5r 3 17r 1 5r 6 5 8r 6 20r 5 7r 6 1r 1 28r 6 87r 1 23r 3 2r 1
6 4 20r 6 10r 4 5r 6 1 5r 3 17r 1 5r 6 5 10r 6 17r 5 7r 6 1r 1
29r 6 88r 1 23r 3 2r 1 6 4 22r 6 4r 4 7r 6 1r 1 6r 3 16r 1 5r 6
5 11r 6 16r 5 6r 6 1r 1 30r 6 88r 1 25r 3 1r 6 1r 4 34r 6 1r 1
7r 3 15r 1 6r 5 12r 6 13r 5 7r 6 1r 1 30r 6 89r 1 26r 3 1 6
1r 4 32r 6 1r 1 3r 3 2r 1 1r 3 15r 1 6r 6 5 12r 6 11r 5 7r 6
1r 1 31r 6 90r 1 26r 3 1 6 1r 4 31r 6 1r 1 3r 3 2r 1 1r 3 14r 1
7r 6 1r 5 19r 6 5 9r 6 1r 1 32r 6 90r 1 29r 6 1r 4 29r 6 1r 1
5r 3 2r 1 3 14r 1 1r 3 1 5r 6 5 29r 6 1r 1 32r 6 92r 1 29r 6
1r 4 27r 6 2r 1 5r 3 1r 1 1r 3 14r 1 3 1r 1 6r 6 5 26r 6 1r 1
34r 6 92r 1 30r 6 2r 4 24r 6 2r 1 6r 3 1r 1 1r 3 17r 1 6r 6
1r 5 24r 6 1r 1 34r 6 94r 1 30r 6 2r 4 22r 6 2r 1 6r 3 2r 1
1r 3 18r 1 6r 6 1r 5 21r 6 2r 1 34r 6 95r 1 32r 6 1r 4 19r 6
3r 1 7r 3 1r 1 1r 3 15r 1 1r 3 2r 1 6r 6 1r 5 18r 6 2r 1 36r 6
96r 1 32r 6 2r 4 16r 6 3r 1 8r 3 1r 1 3 16r 1 1r 3 3r 1 7r 6
1r 5 13r 6 3r 1 37r 6 98r 1 33r 6 1r 4 13r 6 3r 1 10r 3 1 1r 3
16r 1 2r 3 3r 1 8r 6 4r 5 6r 6 3r 1 38r 6 100r 1 33r 6 16r 1
11r 3 1 1r 3 17r 1 4r 3 1r 1 11r 6 9r 1 40r 6 101r 1 35r 6 12r 1
12r 3 1r 1 1r 3 17r 1 5r 3 1r 1 60r 6 103r 1 37r 6 6r 1 15r 3
1 2r 3 17r 1 6r 3 1r 1 19r 3 1r 1 2r 3 1 32r 6 106r 1 57r 3
1r 1 3r 3 16r 1 6r 3 2r 1 16r 3 4r 1 33r 6 110r 1 31r 3 5r 1
15r 3 3r 1 4r 3 15r 1 8r 3 1 14r 3 7r 1 30r 6 114r 1 27r 3 9r 1
12r 3 3r 1 6r 3 14r 1 24r 3 4r 1 31r 6 118r 1 26r 3 7r 1 13r 3
1r 1 82r 6 123r 1 25r 3 3r 1 99r 6 128r 1 124r 6 134r 1 118r 6
139r 1 111r 6 148r 1 102r 6 160r 1 41r 6 6r 1 40r 6 175r 1 9r 6
44r 1 18r 6 31934r 2 13r 6 235r 2 27r 6 223r 2 35r 6 216r 2
69r 6 183r 2 76r 6 176r 2 81r 6 171r 2 86r 6 166r 2 90r 6 163r 2
20r 6 15r 2 56r 6 160r 2 15r 6 7r 4 8r 6 20r 2 42r 6 156r 2
13r 6 4r 4 16r 6 12r 1 20r 6 6r 2 23r 6 153r 2 10r 6 3r 4 22r 6
7r 1 32r 6 6r 2 16r 6 151r 2 9r 6 3r 4 25r 6 4r 1 38r 6 7r 2
13r 6 148r 2 8r 6 3r 4 26r 6 4r 1 41r 6 8r 2 12r 6 145r 2 7r 6
3r 4 27r 6 4r 1 44r 6 8r 2 11r 6 144r 2 6r 6 2r 4 27r 6 5r 1
46r 6 9r 2 10r 6 142r 2 6r 6 2r 4 26r 6 6r 1 53r 6 5r 2 9r 6
140r 2 6r 6 1r 4 24r 6 8r 1 57r 6 4r 2 9r 6 138r 2 6r 6 1r 4
23r 6 9r 1 60r 6 4r 2 8r 6 136r 2 6r 6 1r 4 23r 6 9r 1 62r 6
4r 2 8r 6 134r 2 6r 6 1r 4 23r 6 8r 1 65r 6 4r 2 8r 6 133r 2
5r 6 4 23r 6 9r 1 67r 6 4r 2 8r 6 131r 2 5r 6 1r 4 22r 6 8r 1
71r 6 3r 2 2r 3 2 4r 6 129r 2 1r 3 2 2r 6 1r 4 22r 6 7r 1 75r 6
2r 2 1r 3 2 5r 6 127r 2 1r 3 2 2r 6 1r 4 22r 6 5r 1 79r 6 2r 2
3 1r 2 4r 6 127r 2 1r 3 2 2r 6 1r 4 21r 6 5r 1 81r 6 1r 2 3
1r 2 5r 6 125r 2 1r 3 2 2r 6 1r 4 21r 6 5r 1 83r 6 1r 2 3 1r 2
5r 6 123r 2 5r 6 1r 4 21r 6 5r 1 84r 6 2r 3 1r 2 5r 6 123r 2
1r 3 2 2r 6 4 20r 6 6r 1 86r 6 1r 2 3 2 6r 6 121r 2 1r 3 1r 2
1r 6 1r 4 19r 6 6r 1 87r 6 2r 2 3 2 6r 6 119r 2 2r 3 2 2r 6
4 19r 6 5r 1 90r 6 1r 2 3 2 6r 6 119r 2 1r 3 1r 2 1r 6 1r 4
18r 6 5r 1 91r 6 2r 2 8r 6 117r 2 2r 3 1r 2 6 2r 4 17r 6 5r 1
93r 6 2r 2 7r 6 117r 2 1r 3 1r 2 1r 6 1r 4 18r 6 4r 1 94r 6
2r 2 7r 6 116r 2 2r 3 1r 2 6 1r 4 18r 6 5r 1 95r 6 2r 2 7r 6
115r 2 2r 3 1r 2 6 1r 4 18r 6 4r 1 96r 6 2r 2 7r 6 114r 2 2r 3
1r 2 6 2r 4 17r 6 5r 1 97r 6 2r 2 7r 6 113r 2 2r 3 1r 2 6 1r 4
18r 6 4r 1 98r 6 2r 2 7r 6 112r 2 3r 3 2 6 2r 4 18r 6 3r 1 99r 6
3r 2 6r 6 112r 2 2r 3 1r 2 6 1r 4 18r 6 2r 1 101r 6 3r 2 7r 6
110r 2 3r 3 2 6 2r 4 18r 6 1r 1 103r 6 2r 2 7r 6 110r 2 3r 3
2 6 2r 4 18r 6 1 104r 6 3r 2 6r 6 109r 2 4r 3 6 3r 4 18r 1 105r 6
3r 2 7r 6 108r 2 3r 3 2 6 2r 4 18r 1 105r 6 4r 2 7r 6 107r 2
4r 3 2 6 2r 4 18r 1 104r 6 6r 2 6r 6 108r 2 3r 3 6 3r 4 18r 1
103r 6 7r 2 6r 6 112r 2 6 2r 4 18r 1 104r 6 7r 2 7r 6 115r 4
18r 1 104r 6 8r 2 6r 6 107r 1 5r 6 1r 4 18r 1 104r 6 8r 2 6r 6
106r 1 6r 6 4 19r 1 104r 6 8r 2 6r 6 106r 1 6r 6 4 18r 6 1 104r 6
8r 2 7r 6 104r 1 7r 6 4 18r 6 1 105r 6 7r 2 6r 6 105r 1 7r 6
4 18r 6 1 105r 6 3r 5 6 3r 2 1r 6 2r 1 1r 6 104r 1 6r 6 4 19r 6
1 105r 6 3r 5 6 4r 1 6r 6 102r 1 7r 6 4 19r 6 1 105r 6 2r 5
1r 6 3r 1 7r 6 102r 1 7r 6 4 19r 6 1r 1 104r 6 2r 5 1r 6 3r 1
7r 6 102r 1 7r 6 4 19r 6 1r 1 104r 6 3r 5 6 3r 1 7r 6 101r 1
8r 6 4 19r 6 2r 1 104r 6 2r 5 6 3r 1 8r 6 100r 1 8r 6 4 19r 6
2r 1 104r 6 1r 5 1r 6 3r 1 8r 6 100r 1 8r 6 4 19r 6 3r 1 103r 6
1r 5 1r 6 3r 1 8r 6 99r 1 9r 6 4 20r 6 3r 1 102r 6 1r 5 1r 6
3r 1 8r 6 99r 1 9r 6 4 20r 6 9r 1 96r 6 1r 5 2r 6 2r 1 9r 6
97r 1 10r 6 4 20r 6 16r 1 2r 6 16r 1 69r 6 1r 5 2r 6 2r 1 9r 6
97r 1 10r 6 4 20r 6 92r 1 13r 6 1r 5 1r 6 3r 1 9r 6 97r 1 9r 6
4 21r 6 108r 5 1r 6 3r 1 9r 6 96r 1 10r 6 1r 4 20r 6 108r 5
1r 6 3r 1 9r 6 96r 1 10r 6 1r 4 20r 6 108r 5 1r 6 2r 1 11r 6
95r 1 10r 6 1r 4 20r 6 107r 5 2r 6 2r 1 11r 6 94r 1 11r 6 1r 4
20r 6 107r 5 2r 6 2r 1 11r 6 94r 1 11r 6 1r 4 20r 6 107r 5 1r 6
3r 1 11r 6 94r 1 10r 3 1 6 4 20r 6 107r 5 1r 6 3r 1 11r 6 93r 1
11r 3 1 6 4 21r 6 105r 5 2r 6 2r 1 13r 6 92r 1 11r 3 1 6 4 21r 6
105r 5 2r 6 2r 1 3 1r 1 10r 6 92r 1 11r 3 1 6 4 21r 6 105r 5
2r 6 2r 1 3 1r 1 10r 6 92r 1 11r 3 1 6 4 21r 6 105r 5 1r 6 2r 1
3 2r 1 10r 6 91r 1 12r 3 1r 6 4 21r 6 76r 1 2r 6 25r 5 1r 6
2r 1 3 2r 1 10r 6 91r 1 12r 3 1r 6 1r 4 19r 6 70r 1 9r 6 25r 5
1r 6 2r 1 3 1r 1 11r 6 91r 1 12r 3 1r 6 1r 4 19r 6 66r 1 11r 6
26r 5 2r 6 2r 3 2r 1 12r 6 90r 1 12r 3 1r 6 1r 4 19r 6 63r 1
13r 6 27r 5 2r 6 1r 1 3 1r 1 13r 6 89r 1 13r 3 1r 1 6 4 19r 6
63r 1 11r 6 29r 5 1r 6 2r 1 3 1r 1 13r 6 89r 1 14r 3 1 6 4 19r 6
62r 1 11r 6 29r 5 2r 6 2r 1 3 1r 1 13r 6 89r 1 14r 3 1 6 4 19r 6
62r 1 8r 6 32r 5 2r 6 2r 1 16r 6 88r 1 15r 3 1 6 4 18r 6 63r 1
6r 6 33r 5 2r 6 3r 1 16r 6 88r 1 17r 6 1r 4 17r 6 35r 1 10r 6
15r 1 6r 6 34r 5 2r 6 2r 1 17r 6 88r 1 17r 6 1r 4 17r 6 33r 1
14r 6 13r 1 4r 6 36r 5 2r 6 2r 1 17r 6 88r 1 17r 6 1r 4 17r 6
32r 1 18r 6 10r 1 1r 6 38r 5 2r 6 3r 1 17r 6 87r 1 19r 6 4 17r 6
32r 1 21r 6 48r 5 2r 6 2r 1 19r 6 86r 1 19r 6 4 17r 6 29r 4
6 1r 1 22r 6 47r 5 2r 6 2r 1 19r 6 86r 1 19r 6 4 17r 6 27r 4
2r 6 1 23r 6 46r 5 2r 6 3r 1 19r 6 86r 1 20r 4 18r 6 26r 4 2r 6
1 23r 6 46r 5 2r 6 2r 1 20r 6 86r 1 20r 6 4 17r 6 25r 4 3r 6
1 24r 6 44r 5 3r 6 2r 1 20r 6 85r 1 21r 6 4 17r 6 25r 4 2r 6
1r 1 24r 6 2r 5 6 40r 5 2r 6 2r 1 21r 6 85r 1 21r 6 4 18r 6
23r 4 3r 6 1r 1 24r 6 1r 5 3r 6 37r 5 3r 6 2r 1 21r 6 85r 1
22r 6 4 17r 6 23r 4 3r 6 1r 1 24r 6 1r 5 4r 6 36r 5 2r 6 2r 1
22r 6 85r 1 22r 6 4 17r 6 22r 4 4r 6 1r 1 8r 3 4r 1 10r 6 1r 5
5r 6 34r 5 3r 6 2r 1 22r 6 85r 1 22r 6 1r 4 17r 6 21r 4 4r 6
1r 1 6r 3 8r 1 8r 6 1r 5 5r 6 34r 5 2r 6 2r 1 23r 6 85r 1 23r 6
4 17r 6 20r 4 5r 6 1r 1 5r 3 10r 1 7r 6 1r 5 5r 6 33r 5 3r 6
1r 1 3 1r 1 21r 6 85r 1 23r 6 1r 4 17r 6 19r 4 5r 6 1r 1 5r 3
11r 1 7r 6 5 6r 6 32r 5 2r 6 2r 1 3 1r 1 21r 6 85r 1 24r 6 4
17r 6 18r 4 6r 6 1r 1 4r 3 13r 1 6r 6 5 6r 6 30r 5 4r 6 1r 1
3 1r 1 22r 6 85r 1 24r 6 1r 4 17r 6 17r 4 6r 6 1 5r 3 13r 1
6r 6 5 6r 6 30r 5 3r 6 1r 1 3 1r 1 23r 6 85r 1 25r 6 4 19r 6
14r 4 6r 6 1r 1 4r 3 15r 1 5r 6 5 6r 6 29r 5 4r 6 1r 1 3 1r 1
23r 6 85r 1 25r 6 4 21r 6 11r 4 7r 6 1r 1 4r 3 15r 1 5r 6 5
7r 6 26r 5 5r 6 1r 1 3 1r 1 24r 6 85r 1 22r 3 1 2r 6 4 40r 6
1r 1 4r 3 16r 1 4r 6 5 8r 6 24r 5 5r 6 2r 1 3 1 25r 6 86r 1
21r 3 2r 1 1r 4 39r 6 1r 1 5r 3 16r 1 4r 6 5 9r 6 22r 5 5r 6
2r 1 3 1r 1 25r 6 86r 1 21r 3 3r 1 6 4 38r 6 1r 1 4r 3 17r 1
4r 6 1r 5 8r 6 21r 5 6r 6 1r 1 1r 3 1 26r 6 86r 1 22r 3 3r 1
6 4 37r 6 1r 1 4r 3 17r 1 4r 6 1r 5 9r 6 19r 5 6r 6 2r 1 28r 6
87r 1 23r 3 2r 1 6 1r 4 35r 6 1r 1 6r 3 16r 1 5r 6 5 11r 6 16r 5
7r 6 1r 1 29r 6 88r 1 23r 3 2r 1 6 4 35r 6 1r 1 7r 3 15r 1 5r 6
1r 5 11r 6 14r 5 7r 6 1r 1 30r 6 88r 1 24r 3 2r 1 6 4 34r 6
1r 1 3r 3 1 2r 3 15r 1 5r 6 1r 5 13r 6 11r 5 7r 6 1r 1 31r 6
88r 1 25r 3 1r 1 6 1r 4 33r 6 1r 1 2r 3 2r 1 1r 3 14r 1 7r 6
5 17r 6 6r 5 7r 6 1r 1 31r 6 90r 1 25r 3 1r 1 6 1r 4 31r 6 1r 1
4r 3 1r 1 2r 3 13r 1 8r 5 31r 6 1r 1 32r 6 90r 1 26r 3 1r 1
6 1r 4 29r 6 2r 1 4r 3 2r 1 1r 3 12r 1 2r 3 1r 1 4r 6 5 29r 6
1r 1 32r 6 91r 1 30r 6 1r 4 27r 6 2r 1 5r 3 1r 1 1r 3 13r 1
2r 3 1r 1 5r 5 28r 6 1r 1 33r 6 92r 1 30r 6 2r 4 24r 6 2r 1
6r 3 1r 1 1r 3 13r 1 1r 3 2r 1 5r 6 5 26r 6 1 34r 6 94r 1 30r 6
3r 4 21r 6 2r 1 7r 3 1r 1 1r 3 13r 1 1r 3 2r 1 6r 5 25r 6 1

35r 6 94r 1 31r 6 4r 4 18r 6 2r 1 7r 3 2r 1 3 14r 1 2r 3 2r 1
6r 6 5 21r 6 1 36r 6 96r 1 32r 6 3r 4 16r 6 2r 1 8r 3 1r 1 1r 3
15r 1 1r 3 2r 1 8r 6 5 17r 6 1 37r 6 98r 1 32r 6 4r 4 12r 6
2r 1 10r 3 1r 1 3 16r 1 2r 3 2r 1 9r 6 5 12r 6 1r 1 38r 6 99r 1
34r 6 4r 4 7r 6 3r 1 11r 3 20r 1 3r 3 2r 1 10r 6 10r 1 40r 6
101r 1 35r 6 12r 1 12r 3 2r 1 3 17r 1 4r 3 1r 1 61r 6 103r 1
37r 6 7r 1 14r 3 1r 1 1r 3 17r 1 5r 3 1r 1 21r 3 1 36r 6 106r 1
57r 3 2r 1 1r 3 17r 1 6r 3 1r 1 16r 3 4r 1 34r 6 110r 1 36r 3
1r 1 15r 3 2r 1 3r 3 16r 1 23r 3 7r 1 31r 6 114r 1 30r 3 7r 1
12r 3 1r 1 6r 3 15r 1 22r 3 6r 1 31r 6 118r 1 27r 3 8r 1 96r 6
123r 1 26r 3 5r 1 96r 6 128r 1 124r 6 134r 1 117r 6 140r 1 111r 6
148r 1 102r 6 160r 1 40r 6 8r 1 39r 6 175r 1 8r 6 45r 1 18r 6
31936r 2 8r 6 239r 2 24r 6 226r 2 33r 6 218r 2 66r 6 185r 2
75r 6 177r 2 81r 6 171r 2 85r 6 168r 2 89r 6 163r 2 21r 6 13r 2
15r 3 2 40r 6 160r 2 16r 6 30r 2 48r 6 157r 2 12r 6 5r 4 19r 6
8r 1 19r 6 5r 2 6 2 22r 6 155r 2 10r 6 3r 4 23r 6 6r 1 26r 6
11r 2 16r 6 152r 2 8r 6 3r 4 26r 6 5r 1 30r 6 13r 2 13r 6 149r 2
7r 6 3r 4 28r 6 4r 1 32r 6 14r 2 12r 6 147r 2 7r 6 2r 4 30r 6
3r 1 34r 6 16r 2 11r 6 144r 2 6r 6 2r 4 31r 6 3r 1 36r 6 17r 2
10r 6 142r 2 6r 6 2r 4 32r 6 3r 1 39r 6 1r 1 8r 6 4r 2 10r 6
140r 2 6r 6 1r 4 32r 6 5r 1 51r 6 5r 2 9r 6 138r 2 6r 6 1r 4
32r 6 5r 1 53r 6 6r 2 8r 6 136r 2 6r 6 1r 4 32r 6 6r 1 55r 6
5r 2 8r 6 135r 2 5r 6 1r 4 31r 6 7r 1 57r 6 5r 2 8r 6 133r 2
5r 6 1r 4 30r 6 9r 1 58r 6 5r 2 8r 6 131r 2 5r 6 1r 4 30r 6
9r 1 61r 6 4r 2 2r 3 2 4r 6 129r 2 5r 6 1r 4 29r 6 10r 1 64r 6
3r 2 1r 3 2 5r 6 128r 2 5r 6 4 28r 6 12r 1 66r 6 2r 2 3 1r 2
4r 6 127r 2 5r 6 4 27r 6 13r 1 68r 6 1r 2 3 1r 2 5r 6 125r 2
5r 6 4 26r 6 15r 1 68r 6 2r 2 3 1r 2 5r 6 123r 2 6r 6 4 25r 6
15r 1 70r 6 2r 3 1r 2 5r 6 123r 2 5r 6 4 25r 6 16r 1 71r 6 1r 2
3 1r 2 5r 6 121r 2 5r 6 4 25r 6 16r 1 73r 6 1r 3 1r 2 6r 6 120r 2
1r 3 2 2r 6 4 24r 6 16r 1 74r 6 1r 2 3 2 6r 6 119r 2 2r 3 2
1r 6 1r 4 23r 6 16r 1 76r 6 1r 2 3 2 6r 6 117r 2 2r 3 1r 2 6
1r 4 23r 6 16r 1 78r 6 1r 3 2 6r 6 117r 2 2r 3 1r 2 6 1r 4 22r 6
16r 1 79r 6 1r 2 7r 6 116r 2 2r 3 1r 2 6 1r 4 23r 6 15r 1 80r 6
2r 2 7r 6 115r 2 2r 3 1r 2 6 2r 4 21r 6 16r 1 80r 6 2r 2 7r 6
114r 2 3r 3 2 6 2r 4 21r 6 16r 1 82r 6 2r 2 7r 6 113r 2 2r 3
1r 2 6 2r 4 21r 6 15r 1 83r 6 2r 2 7r 6 112r 2 3r 3 2 6 2r 4
21r 6 15r 1 84r 6 3r 2 6r 6 112r 2 3r 3 2 6 2r 4 21r 6 14r 1
85r 6 3r 2 7r 6 110r 2 3r 3 1r 6 3r 4 21r 6 12r 1 87r 6 3r 2
7r 6 110r 2 3r 3 2 6 2r 4 21r 6 11r 1 89r 6 4r 2 6r 6 109r 2
4r 3 2 6 2r 4 21r 6 8r 1 90r 6 6r 2 7r 6 108r 2 3r 3 1r 6 3r 4
20r 6 7r 1 91r 6 7r 2 7r 6 107r 2 4r 3 2 6 3r 4 20r 6 6r 1 91r 6
9r 2 6r 6 108r 2 3r 3 2 6 3r 4 20r 6 5r 1 91r 6 10r 2 6r 6 111r 2
1r 6 3r 4 20r 6 6r 1 90r 6 11r 2 7r 6 107r 1 1r 6 6r 4 20r 6
5r 1 90r 6 12r 2 7r 6 107r 1 5r 6 2r 4 20r 6 5r 1 89r 6 14r 2
6r 6 106r 1 5r 3 6 1r 4 21r 6 5r 1 88r 6 9r 5 6 4r 2 7r 6 105r 1
6r 6 1r 4 20r 6 5r 1 89r 6 9r 5 1r 6 3r 2 6r 6 106r 1 6r 6 1r 4
20r 6 5r 1 89r 6 9r 5 2r 6 2r 2 5r 6 106r 1 7r 6 1r 4 20r 6
5r 1 90r 6 1r 1 6 5r 5 2r 6 2r 2 2r 6 3r 1 6 104r 1 7r 6 1r 4
20r 6 6r 1 92r 6 5r 5 2r 6 5r 1 5r 6 102r 1 7r 6 2r 4 20r 6
9r 1 90r 6 4r 5 2r 6 3r 1 7r 6 102r 1 7r 6 2r 4 19r 6 14r 1
86r 6 5r 5 2r 6 2r 1 7r 6 102r 1 7r 6 1r 4 20r 6 14r 1 87r 6
4r 5 2r 6 2r 1 8r 6 100r 1 8r 6 1r 4 20r 6 15r 1 86r 6 4r 5
2r 6 2r 1 8r 6 100r 1 8r 6 1r 4 20r 6 16r 1 85r 6 3r 5 3r 6
2r 1 8r 6 100r 1 8r 6 1r 4 20r 6 16r 1 86r 6 2r 5 3r 6 2r 1
8r 6 99r 1 9r 6 1r 4 20r 6 17r 1 85r 6 2r 5 3r 6 2r 1 8r 6 99r 1
9r 6 1r 4 20r 6 17r 1 85r 6 2r 5 3r 6 2r 1 9r 6 98r 1 9r 6 1r 4
21r 6 32r 1 69r 6 2r 5 3r 6 2r 1 9r 6 97r 1 10r 6 1r 4 21r 6
90r 1 11r 6 2r 5 3r 6 2r 1 9r 6 97r 1 10r 6 1r 4 21r 6 104r 5
4r 6 2r 1 9r 6 96r 1 10r 6 1r 4 22r 6 104r 5 4r 6 1r 1 11r 6
95r 1 10r 6 1r 4 22r 6 104r 5 4r 6 1r 1 11r 6 95r 1 10r 6 1r 4
23r 6 103r 5 3r 6 2r 1 11r 6 94r 1 11r 6 1r 4 23r 6 103r 5 3r 6
2r 1 11r 6 94r 1 11r 6 1r 4 24r 6 101r 5 4r 6 2r 1 11r 6 94r 1
11r 6 1r 4 24r 6 101r 5 4r 6 2r 1 12r 6 92r 1 13r 6 4 25r 6
100r 5 4r 6 2r 1 12r 6 92r 1 11r 3 1 6 4 25r 6 100r 5 3r 6 2r 1
13r 6 92r 1 11r 3 1 6 4 25r 6 100r 5 3r 6 2r 1 1r 3 1 10r 6
92r 1 11r 3 1 6 1r 4 24r 6 99r 5 4r 6 1r 1 1r 3 1r 1 10r 6 91r 1
12r 3 1r 6 1r 4 24r 6 99r 5 4r 6 1r 1 3 2r 1 10r 6 91r 1 12r 3
1r 6 4 25r 6 99r 5 3r 6 2r 1 3 1r 1 12r 6 90r 1 12r 3 1r 6 4
25r 6 99r 5 3r 6 2r 3 2r 1 12r 6 90r 1 12r 3 1r 1 6 4 24r 6
99r 5 3r 6 1r 1 3 2r 1 12r 6 89r 1 13r 3 1r 1 6 4 24r 6 98r 5
4r 6 1r 1 3 1r 1 13r 6 89r 1 13r 3 1r 1 6 4 24r 6 98r 5 4r 6
1r 1 3 1r 1 13r 6 89r 1 14r 3 1 6 4 24r 6 98r 5 3r 6 2r 1 3
1 14r 6 88r 1 15r 3 1 6 4 24r 6 97r 5 4r 6 1r 1 1r 3 1 14r 6
88r 1 15r 3 1r 6 1r 4 23r 6 29r 1 11r 6 55r 5 4r 6 1r 1 17r 6
88r 1 15r 3 1 1r 6 4 23r 6 22r 4 1r 6 2r 1 15r 6 53r 5 4r 6
1r 1 17r 6 88r 1 18r 4 24r 6 22r 4 2r 6 1 19r 6 49r 5 4r 6 2r 1
17r 6 87r 1 19r 6 4 23r 6 21r 4 2r 6 1r 1 21r 6 47r 5 4r 6 1r 1
19r 6 86r 1 19r 6 4 23r 6 21r 4 2r 6 1r 1 22r 6 46r 5 3r 6 2r 1
19r 6 86r 1 19r 6 4 23r 6 20r 4 3r 6 1r 1 22r 6 45r 5 4r 6 2r 1
19r 6 86r 1 20r 6 4 22r 6 20r 4 3r 6 1 23r 6 44r 5 5r 6 1r 1
20r 6 85r 1 21r 6 4 22r 6 19r 4 4r 6 1 24r 6 43r 5 4r 6 2r 1
20r 6 85r 1 21r 6 4 22r 6 19r 4 3r 6 1r 1 24r 6 2r 5 2r 6 36r 5
5r 6 1r 1 21r 6 85r 1 22r 4 23r 6 17r 4 4r 6 1r 1 24r 6 1r 5
5r 6 34r 5 5r 6 1r 1 21r 6 85r 1 22r 6 4 22r 6 17r 4 4r 6 1r 1
24r 6 1r 5 5r 6 33r 5 5r 6 1r 1 22r 6 85r 1 22r 6 4 23r 6 15r 4
5r 6 1r 1 8r 3 4r 1 10r 6 1r 5 6r 6 32r 5 5r 6 1r 1 22r 6 85r 1
23r 4 23r 6 15r 4 5r 6 1r 1 6r 3 8r 1 8r 6 1r 5 6r 6 31r 5 5r 6
1r 1 23r 6 85r 1 23r 6 4 23r 6 13r 4 6r 6 1r 1 5r 3 10r 1 7r 6
1r 5 7r 6 29r 5 6r 6 1 1r 3 1 22r 6 84r 1 23r 6 4 24r 6 11r 4
7r 6 1r 1 5r 3 11r 1 7r 6 5 7r 6 28r 5 6r 6 1r 1 3 1r 1 22r 6
84r 1 24r 6 4 24r 6 9r 4 8r 6 1r 1 4r 3 13r 1 6r 6 5 8r 6 26r 5
7r 6 1 3 1r 1 23r 6 84r 1 24r 6 4 26r 6 2r 4 13r 6 1 5r 3 13r 1
6r 6 5 8r 6 26r 5 6r 6 1r 3 2r 1 23r 6 84r 1 25r 6 4 41r 6 1r 1
5r 3 14r 1 5r 6 5 9r 6 23r 5 8r 6 1 3 1r 1 23r 6 85r 1 26r 4
41r 6 1r 1 4r 3 15r 1 5r 6 5 9r 6 22r 5 8r 6 1 3 1r 1 24r 6
85r 1 26r 6 4 40r 6 1r 1 4r 3 16r 1 4r 6 5 9r 6 21r 5 9r 6 1
3 1r 1 24r 6 85r 1 27r 4 40r 6 1 5r 3 16r 1 4r 6 5 10r 6 19r 5
9r 6 1 3 1r 1 25r 6 86r 1 22r 3 1 2r 6 4 38r 6 1r 1 5r 3 16r 1
4r 6 5 10r 6 18r 5 9r 6 1 1r 3 1 26r 6 86r 1 22r 3 2r 1 1r 6
4 37r 6 1r 1 4r 3 17r 1 4r 6 1r 5 10r 6 16r 5 9r 6 1r 1 3 1
27r 6 86r 1 23r 3 2r 1 6 4 37r 6 1 6r 3 16r 1 5r 6 5 11r 6 14r 5
9r 6 1r 1 29r 6 87r 1 23r 3 3r 1 6 4 35r 6 1r 1 7r 3 15r 1 5r 6
5 13r 6 11r 5 9r 6 1r 1 30r 6 88r 1 23r 3 3r 1 6 4 34r 6 1r 1
3r 3 1 2r 3 15r 1 5r 6 1r 5 14r 6 5 2r 6 4r 5 9r 6 1r 1 31r 6
88r 1 24r 3 3r 1 6 4 33r 6 1r 1 3r 3 1r 1 1r 3 14r 1 7r 6 5
32r 6 1r 1 31r 6 89r 1 25r 3 2r 1 6 1r 4 31r 6 1r 1 4r 3 1r 1
2r 3 12r 1 8r 6 5 32r 6 1 32r 6 90r 1 26r 3 1r 1 6 1r 4 29r 6
2r 1 4r 3 2r 1 1r 3 12r 1 2r 3 1 5r 6 5 30r 6 1 32r 6 91r 1
27r 3 1r 1 6 1r 4 28r 6 1r 1 5r 3 1r 1 1r 3 13r 1 2r 3 1 6r 6
5 28r 6 1 33r 6 92r 1 27r 3 1 1r 6 2r 4 25r 6 1r 1 6r 3 1r 1
1r 3 13r 1 1r 3 2r 1 5r 6 1r 5 26r 1 34r 6 93r 1 31r 6 2r 4
23r 6 2r 1 6r 3 1r 1 1r 3 13r 1 1r 3 2r 1 6r 6 1r 5 23r 6 1
35r 6 94r 1 31r 6 3r 4 20r 6 2r 1 7r 3 1r 1 3 14r 1 2r 3 1r 1
7r 6 1r 5 21r 6 1 35r 6 96r 1 32r 6 3r 4 16r 6 2r 1 8r 3 1r 1
3 15r 1 3r 3 1r 1 8r 6 5 17r 6 1r 1 36r 6 97r 1 33r 6 5r 4 12r 6
2r 1 9r 3 19r 1 2r 3 1r 1 10r 6 1r 5 12r 6 1 38r 6 99r 1 34r 6
5r 4 7r 6 3r 1 11r 3 19r 1 3r 3 1r 1 11r 6 10r 1 41r 6 100r 1
35r 6 13r 1 12r 3 20r 1 4r 3 1 62r 6 103r 1 37r 6 7r 1 14r 3
1r 1 1r 3 17r 1 67r 6 106r 1 57r 3 2r 1 1r 3 18r 1 24r 3 4r 1
34r 6 110r 1 55r 3 1 4r 3 17r 1 21r 3 8r 1 31r 6 114r 1 34r 3
4r 1 20r 3 15r 1 21r 3 7r 1 31r 6 118r 1 29r 3 7r 1 58r 3 3r 1
32r 6 123r 1 26r 3 6r 1 95r 6 129r 1 24r 3 1 97r 6 134r 1 118r 6
140r 1 111r 6 147r 1 102r 6 160r 1 40r 6 9r 1 39r 6 174r 1 9r 6
44r 1 18r 6 32186r 2 22r 6 227r 2 32r 6 219r 2 40r 6 3r 2 20r 6
187r 2 73r 6 179r 2 79r 6 173r 2 84r 6 168r 2 88r 6 165r 2 20r 6
12r 2 6r 3 1r 2 7r 3 2 39r 6 161r 2 17r 6 24r 3 1r 6 4r 2 45r 6
158r 2 13r 6 4r 4 18r 6 20r 1 5r 6 7r 2 25r 6 155r 2 10r 6 4r 4
22r 6 5r 1 21r 6 15r 2 18r 6 152r 2 9r 6 2r 4 26r 6 5r 1 21r 6
21r 2 14r 6 149r 2 8r 6 2r 4 28r 6 4r 1 24r 6 22r 2 12r 6 147r 2
7r 6 2r 4 31r 6 3r 1 30r 6 18r 2 11r 6 145r 2 6r 6 2r 4 33r 6
2r 1 34r 6 17r 2 11r 6 142r 2 6r 6 2r 4 34r 6 2r 1 36r 6 2r 1
10r 6 3r 2 10r 6 140r 2 6r 6 2r 4 34r 6 2r 1 52r 6 4r 2 9r 6
138r 2 6r 6 1r 4 36r 6 2r 1 54r 6 3r 2 9r 6 137r 2 5r 6 1r 4
37r 6 1r 1 56r 6 4r 2 8r 6 135r 2 5r 6 1r 4 38r 6 1r 1 57r 6
4r 2 8r 6 133r 2 5r 6 1r 4 38r 6 1r 1 59r 6 4r 2 8r 6 131r 2
5r 6 1r 4 38r 6 2r 1 60r 6 4r 2 8r 6 129r 2 6r 6 1r 4 37r 6
2r 1 62r 6 4r 2 7r 6 129r 2 5r 6 1r 4 37r 6 3r 1 63r 6 4r 2
3 1r 2 4r 6 127r 2 5r 6 1r 4 36r 6 4r 1 65r 6 3r 2 3 1r 2 5r 6
125r 2 5r 6 2r 4 35r 6 4r 1 68r 6 2r 2 3 1r 2 5r 6 124r 2 5r 6
1r 4 35r 6 5r 1 69r 6 2r 3 1r 2 5r 6 123r 2 5r 6 2r 4 33r 6
6r 1 71r 6 1r 2 3 1r 2 5r 6 121r 2 6r 6 1r 4 33r 6 7r 1 71r 6
2r 3 1r 2 6r 6 120r 2 5r 6 1r 4 33r 6 7r 1 73r 6 1r 2 3 1r 2
5r 6 119r 2 5r 6 2r 4 32r 6 8r 1 73r 6 2r 3 1r 2 5r 6 119r 2
5r 6 1r 4 32r 6 8r 1 75r 6 1r 2 3 2 6r 6 117r 2 2r 3 2 1r 6
2r 4 31r 6 9r 1 75r 6 2r 2 3 2 5r 6 117r 2 2r 3 2 6 3r 4 30r 6
9r 1 77r 6 1r 2 3 2 6r 6 115r 2 2r 3 2 1r 6 2r 4 30r 6 10r 1
77r 6 2r 2 3 2 5r 6 114r 2 3r 3 2 6 3r 4 29r 6 11r 1 77r 6 2r 2
7r 6 114r 2 2r 3 1r 2 6 3r 4 28r 6 11r 1 79r 6 2r 2 7r 6 112r 2
3r 3 2 6 3r 4 28r 6 12r 1 79r 6 2r 2 7r 6 112r 2 3r 3 2 6 2r 4
29r 6 12r 1 79r 6 3r 2 7r 6 110r 2 3r 3 1r 6 3r 4 28r 6 13r 1
78r 6 4r 2 7r 6 110r 2 3r 3 2 6 3r 4 28r 6 13r 1 76r 6 7r 2
6r 6 109r 2 4r 3 2 6 3r 4 27r 6 13r 1 76r 6 8r 2 7r 6 108r 2
4r 3 6 3r 4 28r 6 13r 1 75r 6 9r 2 7r 6 107r 2 4r 3 2 6 3r 4
27r 6 14r 1 74r 6 10r 2 7r 6 107r 2 4r 3 2 6 2r 4 28r 6 15r 1
72r 6 12r 2 6r 6 112r 3 6 3r 4 27r 6 16r 1 71r 6 13r 2 7r 6
107r 1 2r 6 5r 4 27r 6 16r 1 69r 6 10r 5 6 3r 2 7r 6 107r 1
5r 6 1r 4 28r 6 16r 1 68r 6 11r 5 1r 6 2r 2 7r 6 106r 1 5r 3
6 1r 4 27r 6 17r 1 67r 6 12r 5 1r 6 3r 2 7r 6 105r 1 4r 3 1r 6
1r 4 27r 6 17r 1 66r 6 13r 5 2r 6 2r 2 7r 6 105r 1 4r 3 1 6
1r 4 27r 6 17r 1 65r 6 14r 5 2r 6 2r 2 5r 6 106r 1 5r 3 1 6
4 27r 6 19r 1 64r 6 14r 5 2r 6 2r 2 1r 6 110r 1 5r 3 1 6 4 27r 6
19r 1 63r 6 15r 5 3r 6 7r 1 2r 6 102r 1 6r 3 1 6 4 27r 6 19r 1
62r 6 16r 5 3r 6 3r 1 6r 6 102r 1 8r 6 4 27r 6 19r 1 61r 6 17r 5
3r 6 2r 1 7r 6 102r 1 7r 6 1r 4 27r 6 20r 1 60r 6 17r 5 3r 6
2r 1 8r 6 100r 1 8r 6 1r 4 27r 6 20r 1 59r 6 17r 5 4r 6 2r 1
8r 6 100r 1 8r 6 1r 4 27r 6 20r 1 59r 6 17r 5 4r 6 2r 1 8r 6
100r 1 8r 6 1r 4 27r 6 20r 1 58r 6 18r 5 4r 6 2r 1 8r 6 99r 1
9r 6 1r 4 27r 6 21r 1 57r 6 18r 5 4r 6 2r 1 8r 6 99r 1 9r 6
1r 4 27r 6 21r 1 56r 6 19r 5 4r 6 2r 1 9r 6 97r 1 10r 6 1r 4
27r 6 23r 1 54r 6 19r 5 4r 6 2r 1 9r 6 97r 1 10r 6 1r 4 27r 6
98r 5 4r 6 1r 1 10r 6 97r 1 10r 6 1r 4 27r 6 98r 5 3r 6 2r 1
10r 6 96r 1 11r 6 1r 4 27r 6 97r 5 4r 6 2r 1 11r 6 95r 1 11r 6
1r 4 28r 6 96r 5 4r 6 2r 1 11r 6 95r 1 10r 6 2r 4 28r 6 96r 5
4r 6 2r 1 11r 6 94r 1 11r 6 2r 4 28r 6 96r 5 4r 6 2r 1 11r 6
94r 1 11r 6 2r 4 28r 6 95r 5 5r 6 2r 1 11r 6 94r 1 11r 6 2r 4
28r 6 95r 5 5r 6 2r 1 12r 6 92r 1 13r 6 1r 4 28r 6 95r 5 4r 6
2r 1 13r 6 92r 1 13r 6 1r 4 28r 6 95r 5 4r 6 2r 1 13r 6 92r 1
13r 6 1r 4 29r 6 94r 5 4r 6 2r 1 13r 6 92r 1 13r 6 1r 4 29r 6
94r 5 4r 6 2r 1 13r 6 91r 1 12r 3 1 6 1r 4 29r 6 93r 5 5r 6
1r 1 1r 3 1 12r 6 90r 1 12r 3 1r 6 1r 4 29r 6 93r 5 4r 6 2r 1
3 1r 1 12r 6 90r 1 12r 3 1r 6 2r 4 29r 6 92r 5 4r 6 2r 3 2r 1
12r 6 90r 1 12r 3 1r 1 6 1r 4 29r 6 92r 5 4r 6 1r 1 3 2r 1 12r 6
89r 1 13r 3 1r 1 6 1r 4 29r 6 91r 5 5r 6 1r 1 3 1r 1 13r 6 89r 1
13r 3 1r 1 6 1r 4 30r 6 90r 5 4r 6 2r 3 2r 1 13r 6 89r 1 13r 3
2r 6 1r 4 30r 6 90r 5 4r 6 1r 1 3 1r 1 14r 6 88r 1 15r 3 1r 6
1r 4 30r 6 90r 5 4r 6 1r 1 3 1r 1 14r 6 88r 1 15r 3 1r 6 1r 4
30r 6 23r 1 11r 6 53r 5 4r 6 2r 1 3 1 15r 6 88r 1 15r 3 1r 1
6 4 31r 6 14r 4 1r 6 2r 1 17r 6 50r 5 4r 6 2r 1 17r 6 87r 1
16r 3 1r 1 6 4 31r 6 13r 4 2r 6 1r 1 19r 6 49r 5 4r 6 1r 1 19r 6
86r 1 16r 3 1r 1 6 1r 4 30r 6 13r 4 2r 6 1r 1 21r 6 47r 5 3r 6
2r 1 19r 6 86r 1 17r 3 1 6 1r 4 31r 6 11r 4 3r 6 1r 1 22r 6
45r 5 4r 6 2r 1 19r 6 86r 1 20r 6 4 31r 6 10r 4 4r 6 1r 1 22r 6
3r 5 3r 6 37r 5 3r 6 2r 1 20r 6 86r 1 20r 6 4 32r 6 9r 4 4r 6
1 23r 6 2r 5 6r 6 34r 5 4r 6 2r 1 20r 6 85r 1 21r 6 4 32r 6
8r 4 5r 6 1 23r 6 2r 5 6r 6 33r 5 5r 6 2r 1 20r 6 85r 1 21r 6
1r 4 32r 6 5r 4 6r 6 1r 1 24r 6 1r 5 7r 6 32r 5 4r 6 2r 1 21r 6
85r 1 22r 6 4 34r 6 2r 4 7r 6 1r 1 24r 6 1r 5 7r 6 31r 5 5r 6
2r 1 21r 6 85r 1 22r 6 4 45r 6 1r 1 24r 6 1r 5 8r 6 28r 5 7r 6
1r 1 22r 6 85r 1 22r 6 1r 4 44r 6 1r 1 7r 3 5r 1 10r 6 1r 5
9r 6 26r 5 7r 6 2r 1 23r 6 84r 1 23r 6 4 44r 6 1r 1 6r 3 8r 1
8r 6 1r 5 9r 6 26r 5 6r 6 2r 1 24r 6 84r 1 23r 6 4 44r 6 1r 1
5r 3 10r 1 7r 6 1r 5 10r 6 24r 5 7r 6 1r 1 25r 6 84r 1 23r 6
4 44r 6 1r 1 5r 3 11r 1 6r 6 1r 5 10r 6 23r 5 8r 6 1r 1 25r 6
84r 1 24r 6 4 43r 6 1r 1 4r 3 13r 1 6r 6 5 10r 6 22r 5 8r 6
1r 1 1r 3 1 23r 6 84r 1 24r 6 4 43r 6 1 5r 3 13r 1 6r 6 5 11r 6
20r 5 9r 6 1r 1 3 1r 1 23r 6 84r 1 25r 6 4 41r 6 1r 1 5r 3 14r 1
5r 6 5 11r 6 19r 5 9r 6 1r 1 3 1r 1 24r 6 84r 1 26r 4 41r 6
1r 1 4r 3 15r 1 5r 6 5 11r 6 18r 5 10r 6 1 3 2r 1 23r 6 85r 1
26r 6 4 40r 6 1r 1 4r 3 15r 1 5r 6 5 12r 6 16r 5 10r 6 1r 3
2r 1 24r 6 85r 1 27r 4 40r 6 1 5r 3 11r 1 6r 6 5 11r 6 15r 5
10r 6 1r 1 3 1r 1 25r 6 85r 1 27r 6 4 38r 6 1r 1 5r 3 16r 1
4r 6 1r 5 12r 6 13r 5 10r 6 1r 1 3 1r 1 26r 6 86r 1 27r 6 4
37r 6 1r 1 4r 3 17r 1 4r 6 2r 5 12r 6 12r 5 9r 6 2r 1 3 1r 1
26r 6 86r 1 23r 3 1r 1 1r 6 4 36r 6 1r 1 6r 3 16r 1 4r 6 2r 5
16r 6 7r 5 9r 6 2r 1 3 1r 1 26r 6 87r 1 23r 3 2r 1 1r 6 1r 4

34r 6 1r 1 7r 3 15r 1 5r 6 1r 5 33r 6 2r 1 1r 3 1 27r 6 88r 1
23r 3 2r 1 1r 6 4 34r 6 1r 1 7r 3 15r 1 5r 6 2r 5 31r 6 2r 1
31r 6 88r 1 24r 3 3r 1 6 4 33r 6 1r 1 3r 3 1r 1 1r 3 15r 1 6r 6
1r 5 30r 6 2r 1 31r 6 89r 1 25r 3 3r 6 1r 4 31r 6 1r 1 4r 3
1r 1 1r 3 13r 1 8r 6 1r 5 29r 6 2r 1 32r 6 90r 1 25r 3 2r 1
6 1r 4 30r 6 1r 1 4r 3 2r 1 3 13r 1 9r 6 1r 5 27r 6 2r 1 33r 6
90r 1 26r 3 2r 1 6 1r 4 28r 6 1r 1 5r 3 1r 1 1r 3 13r 1 2r 3
1 6r 6 5 26r 6 2r 1 33r 6 92r 1 26r 3 2r 1 6 1r 4 26r 6 2r 1
5r 3 1r 1 1r 3 12r 1 2r 3 1r 1 6r 6 1r 5 24r 6 2r 1 34r 6 92r 1
28r 3 1 1r 6 2r 4 23r 6 2r 1 6r 3 1r 1 3 14r 1 1r 3 2r 1 6r 6
1r 5 21r 6 2r 1 35r 6 94r 1 31r 6 2r 4 21r 6 2r 1 7r 3 1 1r 3
14r 1 2r 3 1r 1 7r 6 1r 5 19r 6 2r 1 35r 6 95r 1 33r 6 2r 4
17r 6 3r 1 8r 3 1 3 15r 1 3r 3 1 9r 6 1r 5 14r 6 3r 1 37r 6
96r 1 33r 6 2r 4 14r 6 3r 1 9r 3 19r 1 2r 3 1 10r 6 3r 5 9r 6
3r 1 38r 6 98r 1 34r 6 2r 4 9r 6 4r 1 11r 3 19r 1 17r 6 11r 1
40r 6 100r 1 35r 6 13r 1 13r 3 19r 1 69r 6 102r 1 37r 6 7r 1
15r 3 21r 1 66r 6 105r 1 62r 3 19r 1 65r 6 109r 1 60r 3 18r 1
20r 3 8r 1 32r 6 114r 1 36r 3 3r 1 18r 3 16r 1 19r 3 9r 1 31r 6
118r 1 31r 3 6r 1 55r 3 7r 1 31r 6 122r 1 28r 3 5r 1 95r 6 128r 1
25r 3 1r 1 95r 6 134r 1 118r 6 140r 1 111r 6 147r 1 102r 6 159r 1
41r 6 9r 1 39r 6 172r 1 13r 6 1r 1 5r 6 33r 1 20r 6 32185r 2
20r 6 230r 2 30r 6 221r 2 39r 6 6r 2 15r 6 189r 2 72r 6 180r 2
79r 6 173r 2 84r 6 168r 2 88r 6 165r 2 21r 6 9r 2 17r 3 2 40r 6
161r 2 17r 6 8r 4 2r 6 9r 2 2r 3 2r 2 6r 3 1r 2 40r 6 158r 2
14r 6 4r 4 18r 6 6r 1 6r 6 18r 2 26r 6 155r 2 11r 6 4r 4 22r 6
5r 1 15r 6 19r 2 19r 6 152r 2 9r 6 3r 4 27r 6 3r 1 17r 6 24r 2
14r 6 150r 2 8r 6 2r 4 30r 6 2r 1 19r 6 26r 2 13r 6 147r 2 7r 6
1r 4 34r 6 1r 1 29r 6 19r 2 11r 6 145r 2 7r 6 1r 4 35r 6 1 35r 6
9r 1 1r 6 4r 2 11r 6 142r 2 6r 6 1r 4 37r 1 39r 6 1r 1 8r 6
4r 2 10r 6 140r 2 6r 6 1r 4 38r 1 51r 6 5r 2 9r 6 138r 2 6r 6
1r 4 38r 1 54r 6 4r 2 9r 6 137r 2 5r 6 4 40r 1 55r 6 4r 2 9r 6
135r 2 5r 6 4 41r 1 56r 6 5r 2 8r 6 133r 2 5r 6 4 41r 1 58r 6
5r 2 8r 6 131r 2 5r 6 1r 4 41r 1 59r 6 5r 2 7r 6 130r 2 6r 6
4 41r 6 1 59r 6 6r 2 7r 6 129r 2 5r 6 4 41r 6 1r 1 60r 6 5r 2
8r 6 127r 2 5r 6 1r 4 41r 6 1 62r 6 5r 2 1r 3 2 5r 6 125r 2
6r 6 4 41r 6 1 66r 6 3r 2 3 1r 2 5r 6 124r 2 5r 6 4 42r 1 69r 6
2r 3 1r 2 5r 6 123r 2 5r 6 1r 4 41r 1 70r 6 2r 2 3 1r 2 5r 6
121r 2 6r 6 4 41r 6 1 71r 6 2r 3 1r 2 5r 6 121r 2 5r 6 4 42r 1
73r 6 1r 2 3 1r 2 5r 6 119r 2 5r 6 1r 4 41r 6 1 73r 6 2r 3 1r 2
5r 6 119r 2 5r 6 4 42r 6 1 74r 6 1r 2 3 1r 2 5r 6 117r 2 5r 6
1r 4 42r 1 75r 6 2r 3 1r 2 5r 6 117r 2 4r 6 2r 4 41r 6 1 76r 6
1r 2 3 1r 2 5r 6 115r 2 5r 6 1r 4 42r 1 77r 6 2r 3 1r 2 5r 6
114r 2 5r 6 2r 4 42r 1 77r 6 2r 2 3 2 5r 6 114r 2 5r 6 2r 4
41r 6 1 77r 6 3r 2 3 2 5r 6 112r 2 3r 3 2 6 2r 4 42r 1 78r 6
3r 2 3 2 5r 6 112r 2 3r 3 2 6 2r 4 42r 1 78r 6 4r 2 7r 6 110r 2
3r 3 1r 6 3r 4 41r 6 1 76r 6 6r 2 7r 6 110r 2 3r 3 2 6 2r 4
42r 6 1 75r 6 7r 2 7r 6 109r 2 4r 3 2 6 2r 4 41r 6 1r 1 74r 6
9r 2 7r 6 108r 2 4r 3 2 6 1r 4 42r 6 2r 1 71r 6 11r 2 7r 6 107r 2
4r 3 1r 6 2r 4 41r 6 3r 1 70r 6 12r 2 7r 6 107r 2 4r 3 2 6 1r 4
42r 6 3r 1 69r 6 5r 5 3r 6 4r 2 6r 6 112r 3 6 2r 4 41r 6 4r 1
68r 6 4r 5 7r 6 2r 2 7r 6 107r 1 2r 6 4r 4 42r 6 4r 1 66r 6
4r 5 8r 6 2r 2 7r 6 107r 1 5r 6 4 43r 6 4r 1 65r 6 3r 5 10r 6
2r 2 7r 6 106r 1 5r 3 6 1r 4 42r 6 4r 1 64r 6 3r 5 12r 6 1r 2
7r 6 106r 1 4r 3 1r 6 4 43r 6 4r 1 63r 6 3r 5 13r 6 1r 2 7r 6
106r 1 4r 3 1r 6 4 43r 6 5r 1 61r 6 3r 5 15r 6 1r 2 5r 6 106r 1
5r 3 1 6 4 43r 6 5r 1 61r 6 2r 5 16r 6 1r 2 1r 6 3r 1 1r 6 104r 1
5r 3 1 6 4 44r 6 4r 1 60r 6 2r 5 17r 6 4r 1 5r 6 102r 1 6r 3
1 6 4 44r 6 5r 1 58r 6 2r 5 18r 6 2r 1 7r 6 102r 1 6r 3 1 6
4 44r 6 5r 1 58r 6 2r 5 19r 6 1r 1 7r 6 102r 1 5r 3 1r 6 4 45r 6
5r 1 57r 6 2r 5 19r 6 2r 1 8r 6 100r 1 6r 3 1r 6 4 45r 6 6r 1
56r 6 1r 5 20r 6 2r 1 8r 6 100r 1 6r 3 1 6 1r 4 45r 6 5r 1 55r 6
2r 5 20r 6 2r 1 8r 6 100r 1 8r 6 1r 4 45r 6 5r 1 55r 6 1r 5
21r 6 2r 1 8r 6 99r 1 9r 6 1r 4 45r 6 5r 1 54r 6 2r 5 21r 6
1r 1 9r 6 99r 1 9r 6 4 46r 6 6r 1 52r 6 2r 5 22r 6 1r 1 10r 6
97r 1 10r 6 4 46r 6 7r 1 51r 6 1r 5 23r 6 1r 1 10r 6 97r 1 10r 6
4 46r 6 55r 1 1r 6 3r 5 23r 6 1r 1 10r 6 97r 1 10r 6 4 47r 6
59r 5 24r 6 1r 1 10r 6 96r 1 11r 6 4 47r 6 58r 5 25r 6 1r 1
11r 6 95r 1 11r 6 4 48r 6 56r 5 25r 6 2r 1 11r 6 95r 1 11r 6
4 48r 6 55r 5 26r 6 2r 1 11r 6 94r 1 11r 6 2r 4 48r 6 54r 5
26r 6 2r 1 11r 6 94r 1 11r 6 2r 4 48r 6 53r 5 27r 6 2r 1 11r 6
94r 1 12r 6 1r 4 49r 6 51r 5 27r 6 2r 1 13r 6 92r 1 13r 6 1r 4
50r 6 49r 5 28r 6 2r 1 13r 6 92r 1 13r 6 1r 4 50r 6 48r 5 29r 6
2r 1 13r 6 92r 1 13r 6 1r 4 51r 6 45r 5 31r 6 2r 1 13r 6 91r 1
14r 6 1r 4 51r 6 44r 5 32r 6 2r 1 13r 6 91r 1 14r 6 1r 4 51r 6
42r 5 34r 6 1r 1 15r 6 90r 1 14r 6 2r 4 50r 6 39r 5 36r 6 2r 1
15r 6 90r 1 12r 3 1 6 2r 4 50r 6 36r 5 39r 6 2r 1 3 1 13r 6
89r 1 13r 3 1r 1 6 1r 4 50r 6 34r 5 41r 6 1r 1 3 2r 1 12r 6
89r 1 13r 3 1r 1 6 1r 4 50r 6 33r 5 41r 6 2r 1 3 1r 1 13r 6
89r 1 13r 3 1r 1 6 1r 4 50r 6 31r 5 43r 6 2r 3 2r 1 13r 6 89r 1
13r 3 1r 1 6 1r 4 50r 6 30r 5 44r 6 1r 1 3 2r 1 13r 6 88r 1
14r 3 2r 6 1r 4 50r 6 29r 5 44r 6 2r 1 3 1r 1 14r 6 88r 1 14r 3
2r 6 1r 4 49r 6 4r 1 11r 6 13r 5 44r 6 2r 3 2r 1 14r 6 88r 1
15r 3 1r 1 6 4 49r 6 1r 1 18r 6 8r 5 45r 6 1r 1 3 1r 1 15r 6
87r 1 16r 3 1r 1 6 1r 4 47r 6 1r 1 20r 6 5r 5 46r 6 2r 1 1r 3
1 16r 6 86r 1 16r 3 1r 1 6 1r 4 47r 6 1r 1 21r 6 3r 5 47r 6
2r 1 19r 6 86r 1 16r 3 1r 1 6 1r 4 47r 6 1r 1 21r 6 2r 5 48r 6
1r 1 20r 6 86r 1 17r 3 1r 1 6 1r 4 46r 6 1r 1 22r 6 1r 5 47r 6
2r 1 20r 6 85r 1 18r 3 1r 1 6 1r 4 46r 6 1 23r 6 1r 5 47r 6
2r 1 20r 6 85r 1 21r 6 4 47r 6 1 23r 6 1r 5 46r 6 2r 1 21r 6
85r 1 21r 6 1r 4 45r 6 1r 1 23r 6 1r 5 46r 6 2r 1 21r 6 85r 1
22r 6 4 45r 6 1r 1 23r 6 1r 5 46r 6 1r 1 22r 6 85r 1 22r 6 4
45r 6 1r 1 24r 6 5 45r 6 2r 1 22r 6 85r 1 22r 6 1r 4 44r 6 1r 1
7r 3 5r 1 10r 6 5 45r 6 1r 1 24r 6 84r 1 23r 6 4 44r 6 1r 1
6r 3 8r 1 8r 6 5 45r 6 1r 1 24r 6 83r 1 24r 6 1r 4 43r 6 1r 1
5r 3 10r 1 7r 6 5 44r 6 1r 1 25r 6 83r 1 25r 6 4 43r 6 1 5r 3
12r 1 6r 6 5 44r 6 1r 1 25r 6 83r 1 25r 6 1r 4 42r 6 1 5r 3
13r 1 5r 6 5 43r 6 1r 1 26r 6 83r 1 26r 6 4 42r 6 1 5r 3 13r 1
5r 6 5 43r 6 1r 1 26r 6 84r 1 25r 6 4 41r 6 1r 1 4r 3 15r 1
4r 6 5 42r 6 1r 1 1r 3 1 24r 6 84r 1 26r 6 4 40r 6 1r 1 4r 3
15r 1 5r 6 5 41r 6 1 1r 3 1r 1 24r 6 84r 1 26r 6 4 40r 6 1r 1
4r 3 15r 1 5r 6 5 40r 6 1r 1 3 1r 1 24r 6 85r 1 27r 6 4 38r 6
1r 1 5r 3 15r 1 5r 6 5 39r 6 1r 1 3 1r 1 25r 6 85r 1 27r 6 4
38r 6 1r 1 4r 3 17r 1 4r 6 5 38r 6 1r 1 3 2r 1 25r 6 85r 1 28r 6
4 37r 6 1r 1 4r 3 17r 1 4r 6 5 37r 6 2r 3 2r 1 26r 6 86r 1 27r 6
1r 4 35r 6 1r 1 5r 3 17r 1 4r 6 1r 5 35r 6 2r 1 3 1r 1 27r 6
86r 1 28r 6 4 35r 6 1r 1 6r 3 16r 1 5r 6 5 34r 6 2r 1 3 1r 1
27r 6 87r 1 24r 3 1r 1 2r 6 4 34r 6 1r 1 7r 3 15r 1 5r 6 1r 5
32r 6 2r 1 1r 3 1 28r 6 88r 1 24r 3 2r 1 6 1r 4 33r 6 1r 1 7r 3
15r 1 6r 6 5 31r 6 2r 1 31r 6 89r 1 24r 3 3r 1 6 1r 4 32r 6
1 4r 3 1r 1 1r 3 13r 1 8r 6 5 30r 6 2r 1 32r 6 89r 1 25r 3 3r 1
6 1r 4 30r 6 1r 1 4r 3 2r 1 3 13r 1 9r 6 5 29r 6 1r 1 33r 6
90r 1 25r 3 3r 1 6 1r 4 28r 6 1r 1 5r 3 1r 1 1r 3 13r 1 9r 6
1r 5 27r 6 1 34r 6 91r 1 27r 3 2r 1 6 1r 4 26r 6 1r 1 6r 3 1r 1
1r 3 12r 1 2r 3 1r 1 6r 6 1r 5 25r 6 1r 1 34r 6 92r 1 27r 3
2r 1 6 2r 4 23r 6 2r 1 6r 3 1 1r 3 14r 1 1r 3 1r 1 7r 6 1r 5
23r 6 1 35r 6 94r 1 28r 3 1r 1 6 2r 4 21r 6 2r 1 9r 3 15r 1
1r 3 1r 1 8r 6 1r 5 20r 6 1r 1 35r 6 95r 1 29r 3 1r 1 1r 6 2r 4
17r 6 3r 1 8r 3 1 3 16r 1 1r 3 1 10r 6 2r 5 14r 6 3r 1 36r 6
96r 1 33r 6 3r 4 13r 6 3r 1 10r 3 18r 1 14r 6 4r 5 4r 6 2r 5
6 3r 1 38r 6 98r 1 34r 6 3r 4 9r 6 3r 1 12r 3 19r 1 15r 6 12r 1
40r 6 100r 1 35r 6 13r 1 13r 3 20r 1 68r 6 102r 1 36r 6 9r 1
14r 3 21r 1 66r 6 105r 1 61r 3 20r 1 65r 6 109r 1 59r 3 20r 1
18r 3 6r 1 35r 6 113r 1 38r 3 3r 1 16r 3 18r 1 17r 3 9r 1 32r 6
118r 1 33r 3 5r 1 52r 3 8r 1 32r 6 122r 1 29r 3 5r 1 57r 3 1
35r 6 128r 1 26r 3 1 95r 6 134r 1 117r 6 141r 1 111r 6 147r 1
102r 6 159r 1 40r 6 10r 1 39r 6 172r 1 13r 6 1r 1 4r 6 34r 1
20r 6 32185r 2 20r 6 230r 2 29r 6 222r 2 38r 6 10r 2 9r 6 192r 2
72r 6 180r 2 78r 6 174r 2 83r 6 169r 2 88r 6 165r 2 23r 6 6r 2
60r 6 161r 2 17r 6 20r 2 3r 3 3r 2 4r 3 2r 2 40r 6 158r 2 14r 6
4r 4 17r 6 15r 1 2r 2 3r 6 4r 2 32r 6 155r 2 11r 6 4r 4 23r 6
5r 1 12r 6 20r 2 19r 6 153r 2 9r 6 3r 4 28r 6 2r 1 15r 6 25r 2
15r 6 150r 2 8r 6 2r 4 31r 6 1r 1 16r 6 29r 2 13r 6 147r 2 7r 6
3r 4 33r 1 18r 6 2r 1 7r 6 19r 2 12r 6 145r 2 7r 6 2r 4 35r 1
33r 6 12r 1 6 4r 2 10r 6 143r 2 6r 6 2r 4 36r 1 49r 6 5r 2 10r 6
140r 2 6r 6 2r 4 37r 1 50r 6 5r 2 10r 6 138r 2 6r 6 2r 4 37r 6
1 52r 6 5r 2 9r 6 137r 2 5r 6 1r 4 39r 1 54r 6 5r 2 9r 6 135r 2
5r 6 1r 4 39r 6 1 55r 6 6r 2 8r 6 133r 2 5r 6 4 41r 1 58r 6
5r 2 8r 6 131r 2 5r 6 1r 4 40r 6 1 59r 6 5r 2 7r 6 131r 2 5r 6
4 41r 1 60r 6 6r 2 7r 6 129r 2 5r 6 1r 4 40r 6 1 61r 6 5r 2
8r 6 127r 2 5r 6 1r 4 41r 1 63r 6 5r 2 8r 6 125r 2 6r 6 4 41r 6
1 64r 6 2r 1 6 1r 2 7r 6 125r 2 5r 6 4 42r 1 69r 6 2r 2 3 2
5r 6 123r 2 5r 6 1r 4 41r 6 1 70r 6 1r 2 3 2 6r 6 122r 2 5r 6
4 42r 1 71r 6 2r 2 3 2 5r 6 121r 2 5r 6 4 42r 6 1 72r 6 1r 2
3 1r 2 5r 6 119r 2 6r 6 4 42r 1 73r 6 2r 2 3 2 5r 6 119r 2 5r 6
4 42r 6 1 74r 6 1r 2 3 1r 2 5r 6 117r 2 5r 6 1r 4 42r 1 75r 6
2r 3 1r 2 5r 6 117r 2 4r 6 2r 4 41r 6 1 76r 6 1r 2 3 1r 2 5r 6
115r 2 5r 6 1r 4 42r 1 77r 6 2r 3 1r 2 5r 6 115r 2 4r 6 2r 4
42r 1 78r 6 1r 2 3 1r 2 4r 6 114r 2 5r 6 2r 4 41r 6 1 78r 6
2r 3 1r 2 5r 6 112r 2 5r 6 2r 4 42r 1 79r 6 2r 2 3 2 5r 6 112r 2
5r 6 2r 4 42r 1 78r 6 3r 2 3 1r 2 5r 6 110r 2 5r 6 2r 4 43r 1
77r 6 5r 2 3 2 5r 6 110r 2 3r 3 2 6 2r 4 43r 6 1 75r 6 6r 2
3 2 5r 6 110r 2 3r 3 2 6 2r 4 43r 6 1 73r 6 5r 5 1r 6 1r 2 7r 6
108r 2 4r 3 2 6 1r 4 44r 6 1 72r 6 3r 5 5r 6 2 7r 6 107r 2 4r 3
2 6 2r 4 45r 1 71r 6 2r 5 7r 6 2 7r 6 107r 2 4r 3 2 6 2r 4 45r 6
1 68r 6 2r 5 10r 2 7r 6 112r 2 6 2r 4 46r 6 1r 1 66r 6 1r 5
12r 6 2 7r 6 107r 1 2r 6 4r 4 46r 6 1r 1 65r 6 5 14r 6 2 7r 6
107r 1 5r 6 1r 4 46r 6 1r 1 64r 5 16r 6 2 7r 6 106r 1 4r 3 1r 6
4 47r 6 1r 1 63r 5 17r 6 1r 2 7r 6 105r 1 4r 3 1r 6 4 47r 6
1r 1 62r 5 19r 6 2 6r 6 105r 1 5r 3 1r 6 4 47r 6 2r 1 60r 5
20r 6 2 5r 6 106r 1 5r 3 1 6 4 47r 6 2r 1 59r 5 21r 6 2 1r 6
110r 1 5r 3 1 4 48r 6 2r 1 59r 5 22r 6 2r 1 5r 6 102r 1 6r 3
1 4 49r 6 1r 1 58r 5 23r 1 8r 6 102r 1 5r 3 1r 1 6 4 48r 6 2r 1
57r 5 23r 1 8r 6 102r 1 5r 3 1r 1 6 4 48r 6 2r 1 56r 5 24r 1
9r 6 100r 1 6r 3 1r 6 4 49r 6 2r 1 55r 6 5 24r 1 9r 6 100r 1
6r 3 1r 6 4 49r 6 3r 1 54r 5 25r 1 9r 6 99r 1 7r 3 1r 6 4 49r 6
3r 1 53r 6 5 25r 1 9r 6 99r 1 7r 3 1 6 4 50r 6 3r 1 52r 5 26r 1
9r 6 99r 1 7r 3 1 6 4 50r 6 3r 1 51r 5 27r 1 10r 6 97r 1 10r 6
4 50r 6 5r 1 48r 5 27r 6 1 10r 6 97r 1 10r 6 4 52r 6 48r 1 2r 5
28r 6 1 10r 6 97r 1 10r 6 4 53r 6 50r 5 28r 6 1 10r 6 96r 1
11r 6 4 54r 6 49r 5 28r 6 1 11r 6 95r 1 11r 6 4 55r 6 47r 5
29r 6 1 11r 6 95r 1 11r 6 4 56r 6 46r 5 29r 6 1 11r 6 94r 1
12r 6 4 56r 6 45r 5 30r 1 12r 6 94r 1 12r 6 4 56r 6 44r 5 31r 1
13r 6 93r 1 12r 6 4 56r 6 44r 5 30r 6 1 13r 6 92r 1 13r 6 4
56r 6 43r 5 31r 6 1 13r 6 92r 1 13r 6 4 55r 6 42r 5 33r 6 1
13r 6 92r 1 13r 6 1r 4 54r 6 40r 5 35r 6 1 13r 6 91r 1 14r 6
1r 4 53r 6 40r 5 36r 1 14r 6 91r 1 14r 6 1r 4 53r 6 38r 5 37r 6
1 15r 6 90r 1 14r 6 1r 4 52r 6 36r 5 40r 6 1 15r 6 90r 1 14r 6
1r 4 52r 6 34r 5 42r 6 1 15r 6 89r 1 16r 6 4 52r 6 32r 5 44r 1
16r 6 89r 1 16r 6 4 52r 6 30r 5 45r 6 1 3 1r 1 13r 6 89r 1 13r 3
1r 1 6 1r 4 51r 6 28r 5 47r 6 3 2r 1 13r 6 88r 1 14r 3 1r 1
6 1r 4 51r 6 27r 5 47r 6 1 3 2r 1 13r 6 88r 1 14r 3 1r 1 6 4
52r 6 26r 5 48r 6 3 2r 1 14r 6 88r 1 14r 3 2r 6 1r 4 49r 6 3r 1
12r 6 10r 5 49r 1 3 2r 1 14r 6 87r 1 15r 3 2r 1 6 4 49r 6 1r 1
18r 6 5r 5 49r 6 1 3 1r 1 15r 6 87r 1 16r 3 1r 1 6 4 48r 6 1r 1
20r 6 3r 5 50r 6 1 3 1r 1 16r 6 86r 1 16r 3 2r 6 4 48r 6 1r 1
21r 6 1r 5 51r 6 1 3 1 17r 6 86r 1 16r 3 2r 6 1r 4 47r 6 1r 1
21r 6 1r 5 50r 6 1 20r 6 85r 1 17r 3 2r 1 6 4 47r 6 1 23r 5
51r 6 1 20r 6 85r 1 18r 3 1r 1 6 4 47r 6 1 23r 5 50r 6 1 21r 6
85r 1 18r 3 1r 1 6 4 47r 6 1 23r 5 50r 6 1 21r 6 85r 1 19r 3
1 1r 6 4 45r 6 1r 1 23r 6 5 49r 6 1 21r 6 85r 1 22r 6 4 45r 6
1r 1 23r 6 5 48r 6 1 22r 6 85r 1 22r 6 4 45r 6 1r 1 8r 3 2r 1
11r 6 5 48r 6 1 23r 6 83r 1 24r 6 4 44r 6 1r 1 6r 3 6r 1 9r 6
5 47r 6 1 24r 6 83r 1 24r 6 4 44r 6 1r 1 5r 3 9r 1 8r 5 47r 6
1 24r 6 83r 1 24r 6 1r 4 43r 6 1r 1 4r 3 11r 1 7r 5 46r 6 1
25r 6 83r 1 25r 6 4 43r 6 1 5r 3 12r 1 6r 5 46r 6 1 25r 6 83r 1
25r 6 1r 4 42r 6 1 5r 3 13r 1 5r 6 5 44r 6 1 26r 6 83r 1 26r 6
4 42r 6 1 4r 3 14r 1 5r 6 5 43r 6 1r 1 26r 6 83r 1 26r 6 1r 4
40r 6 1r 1 4r 3 15r 1 4r 6 5 43r 6 1 27r 6 83r 1 27r 6 4 40r 6
1r 1 4r 3 15r 1 4r 6 5 42r 6 1 1r 3 1 25r 6 84r 1 26r 6 1r 4
39r 6 1r 1 4r 3 15r 1 4r 6 5 42r 6 1 3 1r 1 24r 6 85r 1 27r 6
4 38r 6 1r 1 5r 3 15r 1 5r 5 41r 6 1 3 2r 1 24r 6 85r 1 27r 6
1r 4 37r 6 1r 1 4r 3 17r 1 4r 5 40r 6 1 3 2r 1 25r 6 85r 1 28r 6
1r 4 36r 6 1r 1 4r 3 17r 1 4r 5 39r 6 1r 3 2r 1 26r 6 86r 1
27r 6 1r 4 36r 6 1 5r 3 17r 1 4r 6 5 38r 6 1 3 1r 1 27r 6 86r 1
28r 6 1r 4 34r 6 1r 1 5r 3 17r 1 4r 6 5 37r 6 1 3 1r 1 27r 6
87r 1 29r 6 1r 4 33r 6 1r 1 6r 3 16r 1 5r 6 5 35r 6 1 3 1r 1
28r 6 87r 1 29r 6 2r 4 32r 6 1 7r 3 16r 1 5r 6 5 33r 6 1r 1
1r 3 1 29r 6 88r 1 25r 3 1r 1 1r 6 2r 4 30r 6 1r 1 4r 3 1 1r 3
16r 1 6r 6 5 31r 6 1r 1 1r 3 1 29r 6 89r 1 25r 3 3r 1 1r 6 1r 4
29r 6 1r 1 4r 3 17r 1 9r 6 5 29r 6 1r 1 33r 6 90r 1 25r 3 3r 1
6 2r 4 28r 6 1 6r 3 16r 1 9r 6 5 28r 6 1 34r 6 91r 1 26r 3 3r 1
1r 6 1r 4 26r 6 1 7r 3 16r 1 1r 3 1 7r 6 5 26r 6 1 35r 6 92r 1
26r 3 3r 1 1r 6 2r 4 23r 6 1r 1 8r 3 15r 1 1r 3 1 8r 6 5 24r 6
1 35r 6 93r 1 28r 3 2r 1 1r 6 1r 4 22r 6 1r 1 9r 3 18r 1 9r 6
1r 5 21r 6 1 35r 6 95r 1 29r 3 1r 1 1r 6 3r 4 18r 6 1r 1 8r 3
19r 1 11r 6 1r 5 18r 6 1r 1 36r 6 96r 1 29r 3 1r 1 2r 6 3r 4

12r 6 3r 1 10r 3 19r 1 13r 6 2r 5 11r 6 3r 1 37r 6 98r 1 30r 3
1 2r 6 6r 4 5r 6 4r 1 10r 3 23r 1 14r 6 11r 1 40r 6 100r 1 35r 6
13r 1 11r 3 24r 1 66r 6 102r 1 37r 6 8r 1 13r 3 24r 1 64r 6
106r 1 59r 3 23r 1 63r 6 109r 1 58r 3 21r 1 16r 3 1r 1 42r 6
113r 1 39r 3 4r 1 13r 3 19r 1 15r 3 8r 1 35r 6 118r 1 34r 3
5r 1 50r 3 8r 1 32r 6 124r 1 30r 3 4r 1 54r 3 2r 1 34r 6 129r 1
123r 6 134r 1 117r 6 141r 1 110r 6 148r 1 102r 6 158r 1 41r 6
12r 1 36r 6 173r 1 12r 6 43r 1 18r 6 32187r 2 18r 6 231r 2 29r 6
222r 2 37r 6 16r 2 6 196r 2 71r 6 181r 2 78r 6 174r 2 83r 6
170r 2 87r 6 165r 2 91r 6 162r 2 17r 6 18r 2 4r 3 4r 2 2r 3
3r 2 40r 6 158r 2 15r 6 4r 4 15r 6 26r 2 34r 6 155r 2 11r 6
4r 4 23r 6 7r 1 9r 6 20r 2 20r 6 153r 2 9r 6 3r 4 27r 6 3r 1
14r 6 25r 2 16r 6 150r 2 8r 6 2r 4 31r 6 2r 1 14r 6 29r 2 14r 6
147r 2 7r 6 2r 4 33r 6 1r 1 19r 6 3r 1 3r 6 20r 2 12r 6 145r 2
7r 6 1r 4 36r 1 35r 6 6r 1 4r 6 3r 2 11r 6 143r 2 6r 6 2r 4
36r 6 1 49r 6 3r 2 11r 6 140r 2 6r 6 1r 4 38r 1 51r 6 4r 2 10r 6
139r 2 5r 6 1r 4 39r 1 53r 6 4r 2 9r 6 137r 2 5r 6 1r 4 39r 1
55r 6 4r 2 9r 6 135r 2 5r 6 1r 4 40r 1 56r 6 5r 2 8r 6 133r 2
5r 6 1r 4 40r 1 59r 6 4r 2 7r 6 132r 2 6r 4 42r 1 60r 6 4r 2
7r 6 131r 2 5r 6 4 41r 6 1 61r 6 3r 2 8r 6 129r 2 5r 6 4 41r 6
1 62r 6 4r 2 8r 6 127r 2 6r 4 42r 6 1 63r 6 4r 2 8r 6 126r 2
5r 6 4 41r 6 1 66r 6 3r 2 7r 6 125r 2 5r 6 4 42r 6 1 68r 6 2r 2
7r 6 123r 2 6r 6 4 41r 6 1 70r 6 1r 2 8r 6 122r 2 5r 6 4 42r 1
71r 6 2r 2 3 2 5r 6 121r 2 5r 6 4 42r 6 1 72r 6 1r 2 3 2 6r 6
119r 2 6r 6 4 42r 1 73r 6 2r 2 3 2 5r 6 119r 2 5r 6 1r 4 41r 6
1 74r 6 1r 2 3 1r 2 5r 6 117r 2 5r 6 1r 4 42r 6 1 74r 6 2r 2
3 2 5r 6 117r 2 5r 6 1r 4 41r 6 1 76r 6 1r 2 3 1r 2 5r 6 115r 2
5r 6 2r 4 41r 6 1 76r 6 2r 2 3 2 5r 6 115r 2 4r 6 2r 4 42r 6
1 76r 6 2r 2 3 1r 2 4r 6 114r 2 5r 6 2r 4 42r 6 1 76r 6 3r 3
1r 2 5r 6 113r 2 4r 6 2r 4 43r 1 77r 6 3r 2 3 2 5r 6 112r 2
5r 6 2r 4 43r 1 76r 6 4r 2 3 1r 2 5r 6 111r 2 5r 6 1r 4 44r 1
75r 6 6r 3 1r 2 5r 6 110r 2 5r 6 2r 4 44r 1 74r 6 7r 2 3 2 5r 6
110r 2 5r 6 2r 4 44r 1 73r 6 9r 3 1r 2 5r 6 108r 2 6r 6 1r 4
45r 1 71r 6 3r 5 5r 6 1r 2 3 2 5r 6 108r 2 5r 6 2r 4 45r 6 1
69r 6 2r 5 8r 6 2 7r 6 108r 2 4r 6 3r 4 45r 6 1 68r 6 2r 5 10r 2
8r 6 111r 2 6 2r 4 47r 1 67r 6 1r 5 12r 6 2 7r 6 107r 1 1r 6
5r 4 47r 6 1 65r 6 1r 5 13r 6 2 7r 6 107r 1 5r 6 1r 4 47r 6
1 63r 6 2r 5 14r 6 2 7r 6 106r 1 4r 3 1r 6 1r 4 47r 6 1 63r 6
1r 5 15r 6 2 8r 6 105r 1 4r 3 1r 6 1r 4 47r 6 1 62r 6 1r 5 16r 6
2 6r 6 106r 1 5r 3 1r 6 4 49r 6 1 60r 6 1r 5 18r 2 4r 6 108r 1
5r 3 1 6 4 49r 6 1 59r 6 1r 5 19r 6 2 1r 6 3r 1 1r 6 104r 1
5r 3 1 6 4 49r 6 1r 1 58r 6 5 20r 6 3r 1 5r 6 102r 1 5r 3 1r 1
6 4 50r 6 1 57r 6 5 22r 6 1 7r 6 102r 1 5r 3 1r 1 6 4 50r 6
1 57r 6 5 22r 1 8r 6 102r 1 5r 3 1r 1 6 4 50r 6 1r 1 55r 6 5
23r 1 9r 6 100r 1 6r 3 1r 1 6 4 50r 6 1r 1 54r 6 1r 5 23r 1
9r 6 100r 1 6r 3 1r 6 1r 4 50r 6 2r 1 52r 6 1r 5 24r 1 9r 6
99r 1 7r 3 1r 6 1r 4 51r 6 1r 1 52r 6 1r 5 24r 1 9r 6 99r 1
7r 3 1r 6 4 52r 6 2r 1 50r 6 1r 5 25r 1 10r 6 98r 1 7r 3 1r 6
4 52r 6 3r 1 49r 6 1r 5 25r 1 10r 6 97r 1 8r 3 1 6 4 52r 6 5r 1
46r 6 1r 5 25r 6 1 10r 6 97r 1 8r 3 1 6 1r 4 52r 6 46r 1 3r 6
1r 5 26r 6 1 10r 6 97r 1 10r 6 1r 4 53r 6 50r 5 27r 6 1 10r 6
96r 1 11r 6 1r 4 54r 6 48r 5 28r 6 1 11r 6 95r 1 11r 6 1r 4
55r 6 46r 5 29r 6 1 11r 6 95r 1 11r 6 4 57r 6 44r 5 30r 1 12r 6
94r 1 12r 6 4 57r 6 43r 5 31r 1 12r 6 94r 1 12r 6 1r 4 56r 6

42r 5 31r 6 1 13r 6 93r 1 12r 6 1r 4 56r 6 40r 5 33r 6 1 13r 6
92r 1 13r 6 4 56r 6 40r 5 34r 6 1 13r 6 92r 1 13r 6 4 56r 6
39r 5 35r 6 1 13r 6 92r 1 13r 6 4 55r 6 38r 5 37r 6 1 13r 6
91r 1 14r 6 1r 4 54r 6 36r 5 39r 1 14r 6 91r 1 14r 6 1r 4 53r 6
35r 5 40r 6 1 15r 6 90r 1 14r 6 1r 4 52r 6 34r 5 42r 6 1 15r 6
89r 1 15r 6 1r 4 52r 6 32r 5 44r 6 1 15r 6 89r 1 16r 6 4 51r 6
32r 5 45r 1 16r 6 89r 1 16r 6 4 51r 6 30r 5 46r 6 1 16r 6 89r 1
16r 6 4 51r 6 29r 5 47r 6 1 3 1 14r 6 88r 1 17r 6 4 51r 6 28r 5
47r 6 1 3 1r 1 14r 6 88r 1 17r 6 1r 4 50r 6 27r 5 48r 6 3 2r 1
14r 6 88r 1 15r 3 1 6 1r 4 49r 6 3r 1 13r 6 9r 5 49r 1 3 2r 1
14r 6 87r 1 16r 3 1r 1 6 4 49r 6 1r 1 18r 6 6r 5 48r 6 1 3 1r 1
16r 6 86r 1 16r 3 1r 1 6 4 49r 6 1 20r 6 4r 5 49r 6 3 2r 1 16r 6
86r 1 16r 3 1r 1 6 4 48r 6 1r 1 21r 6 3r 5 49r 1 3 2r 1 16r 6
86r 1 16r 3 2r 1 6 4 47r 6 1r 1 21r 6 2r 5 49r 6 1 3 1r 1 17r 6
85r 1 17r 3 2r 1 6 4 47r 6 1 23r 6 1r 5 49r 6 1 3 1 18r 6 85r 1
18r 3 1r 1 6 4 47r 6 1 23r 6 1r 5 48r 6 1 21r 6 85r 1 18r 3
2r 6 1r 4 46r 6 1 23r 6 5 49r 6 1 21r 6 85r 1 18r 3 2r 1 6 4
45r 6 1r 1 23r 6 5 49r 1 22r 6 85r 1 19r 3 1r 1 6 4 45r 6 1r 1
23r 6 5 48r 6 1 23r 6 83r 1 21r 3 1 6 4 45r 6 1r 1 7r 3 4r 1
10r 6 5 48r 6 1 23r 6 83r 1 21r 3 1r 1 6 4 44r 6 1r 1 6r 3 7r 1
8r 6 5 47r 6 1 24r 6 83r 1 22r 3 1 6 4 44r 6 1r 1 5r 3 10r 1
6r 6 5 47r 6 1 24r 6 83r 1 24r 6 1r 4 43r 6 1r 1 4r 3 12r 1
6r 5 46r 6 1 25r 6 83r 1 25r 6 4 43r 6 1 5r 3 12r 1 6r 5 46r 6
1 25r 6 83r 1 25r 6 1r 4 42r 6 1 4r 3 14r 1 5r 5 45r 6 1 26r 6
83r 1 26r 6 4 42r 6 1 4r 3 15r 1 4r 6 5 44r 6 1 26r 6 83r 1
26r 6 1r 4 40r 6 1r 1 4r 3 15r 1 4r 6 5 43r 6 1 27r 6 83r 1
27r 6 1r 4 39r 6 1r 1 4r 3 15r 1 4r 6 5 42r 6 1 28r 6 83r 1
27r 6 1r 4 39r 6 1r 1 4r 3 15r 1 4r 6 5 42r 6 1 1r 3 1 25r 6
84r 1 27r 6 4 39r 6 1 5r 3 15r 1 4r 6 5 41r 6 1 3 1r 1 25r 6
85r 1 28r 6 4 38r 6 1 4r 3 16r 1 5r 5 40r 6 1 3 2r 1 25r 6 85r 1
28r 6 4 37r 6 1r 1 4r 3 17r 1 4r 5 39r 6 1r 1 3 1r 1 26r 6 85r 1
29r 6 4 36r 6 1 5r 3 17r 1 4r 6 5 37r 6 1r 1 3 1r 1 27r 6 86r 1
28r 6 1r 4 34r 6 1r 1 5r 3 17r 1 4r 6 5 37r 6 1 3 2r 1 26r 6
87r 1 29r 6 4 34r 6 1r 1 5r 3 17r 1 5r 6 5 34r 6 1r 1 3 2r 1
27r 6 87r 1 30r 6 4 33r 6 1 6r 3 17r 1 5r 6 5 33r 6 1r 1 1r 3
1r 1 28r 6 88r 1 30r 6 4 31r 6 1r 1 6r 3 17r 1 6r 6 5 31r 6
1r 1 1r 3 1r 1 28r 6 89r 1 31r 6 1r 4 29r 6 1 6r 3 19r 1 6r 6
5 29r 6 1r 1 1r 3 1r 1 29r 6 90r 1 26r 3 1r 1 2r 6 1r 4 27r 6
1r 1 6r 3 19r 1 6r 6 5 28r 6 1 34r 6 91r 1 26r 3 3r 1 1r 6 2r 4
24r 6 1r 1 7r 3 19r 1 7r 6 5 26r 6 1 35r 6 92r 1 26r 3 4r 1
6 1r 4 23r 6 1r 1 8r 3 19r 1 8r 6 5 24r 6 1 35r 6 93r 1 27r 3
4r 1 1r 6 1r 4 20r 6 1r 1 7r 3 21r 1 9r 6 5 22r 6 1 35r 6 95r 1
28r 3 3r 1 1r 6 1r 4 17r 6 2r 1 7r 3 23r 1 9r 6 1r 5 18r 6 1r 1
36r 6 96r 1 28r 3 3r 1 1r 6 3r 4 13r 6 2r 1 8r 3 23r 1 11r 6
2r 5 12r 6 2r 1 37r 6 98r 1 29r 3 2r 1 1r 6 4r 4 6r 6 6r 1 8r 3
25r 1 13r 6 12r 1 39r 6 100r 1 30r 3 2r 1 1r 6 14r 1 10r 3 25r 1
64r 6 103r 1 31r 3 1 4r 6 8r 1 13r 3 25r 1 63r 6 106r 1 59r 3
24r 1 61r 6 110r 1 44r 3 1r 1 11r 3 22r 1 12r 3 3r 1 43r 6 113r 1
41r 3 4r 1 12r 3 18r 1 14r 3 7r 1 37r 6 118r 1 36r 3 4r 1 48r 3
7r 1 34r 6 124r 1 32r 3 3r 1 51r 3 3r 1 35r 6 129r 1 123r 6
135r 1 116r 6 141r 1 110r 6 148r 1 51r 6 1r 1 48r 6 158r 1 40r 6
14r 1 35r 6 173r 1 11r 6 45r 1 16r 6 32188r 2 17r 6 233r 2 27r 6
223r 2 37r 6 215r 2 69r 6 183r 2 77r 6 175r 2 82r 6 170r 2 86r 6
166r 2 90r 6 163r 2 18r 6 16r 2 6r 3 10r 2 39r 6 160r 2 14r 6

5r 4 12r 6 17r 3 1r 6 2r 2 39r 6 156r 2 12r 6 4r 4 20r 6 10r 1
1r 6 3r 1 1r 6 19r 2 22r 6 153r 2 10r 6 3r 4 25r 6 5r 1 12r 6
24r 2 18r 6 150r 2 9r 6 2r 4 29r 6 3r 1 13r 6 29r 2 14r 6 148r 2
8r 6 1r 4 33r 6 1r 1 14r 6 3r 1 3r 6 25r 2 12r 6 145r 2 7r 6
1r 4 36r 6 1 32r 6 10r 1 1r 6 4r 2 11r 6 143r 2 7r 6 1r 4 37r 1
47r 6 5r 2 10r 6 142r 2 5r 6 1r 4 39r 1 49r 6 5r 2 10r 6 139r 2
5r 6 1r 4 39r 1 51r 6 5r 2 10r 6 137r 2 5r 6 4 41r 1 53r 6 5r 2
9r 6 135r 2 5r 6 4 41r 1 55r 6 5r 2 8r 6 134r 2 5r 6 4 42r 1
56r 6 5r 2 8r 6 133r 2 5r 4 42r 1 58r 6 5r 2 8r 6 131r 2 5r 6
4 41r 6 1 59r 6 5r 2 8r 6 129r 2 5r 6 4 42r 1 61r 6 5r 2 8r 6
127r 2 6r 4 42r 6 1 61r 6 6r 2 8r 6 126r 2 5r 6 4 42r 1 63r 6
6r 2 7r 6 125r 2 5r 6 4 42r 6 1 64r 6 1 2r 6 2r 2 7r 6 123r 2
6r 4 43r 1 70r 6 1r 2 8r 6 122r 2 5r 6 4 42r 6 1 70r 6 2r 2
7r 6 121r 2 6r 4 43r 1 72r 6 1r 2 8r 6 120r 2 5r 6 4 42r 6 1
73r 6 1r 2 7r 6 119r 2 5r 6 1r 4 42r 6 1 73r 6 2r 2 7r 6 117r 2
6r 6 4 42r 6 1r 1 73r 6 2r 2 3 2 5r 6 117r 2 5r 6 1r 4 42r 6
1 74r 6 3r 3 1r 2 5r 6 115r 2 5r 6 1r 4 42r 6 1r 1 75r 6 2r 2
3 2 5r 6 115r 2 5r 6 1r 4 42r 6 1r 1 75r 6 2r 2 3 1r 2 4r 6
114r 2 5r 6 2r 4 42r 6 1r 1 75r 6 3r 3 1r 2 5r 6 113r 2 5r 6
1r 4 43r 6 1 76r 6 3r 2 3 1r 2 4r 6 112r 2 5r 6 2r 4 42r 6 1r 1
74r 6 5r 2 3 1r 2 5r 6 111r 2 5r 6 2r 4 42r 6 1r 1 73r 6 7r 3
1r 2 5r 6 110r 2 5r 6 2r 4 43r 6 1r 1 71r 6 9r 2 3 1r 2 4r 6
110r 2 5r 6 2r 4 43r 6 1r 1 69r 6 3r 5 5r 6 1r 2 3 1r 2 5r 6
108r 2 6r 6 1r 4 43r 6 2r 1 67r 6 3r 5 9r 6 2 3 2 5r 6 108r 2
5r 6 2r 4 43r 6 3r 1 64r 6 4r 5 10r 6 2 3 2 5r 6 108r 2 5r 6
2r 4 44r 6 2r 1 62r 6 5r 5 11r 6 2 3 2 6r 6 111r 2 1r 6 2r 4
44r 6 2r 1 59r 6 7r 5 13r 6 2 7r 6 107r 1 6 6r 4 45r 6 2r 1
55r 6 10r 5 14r 6 2 7r 6 107r 1 3r 6 3r 4 45r 6 3r 1 51r 6 8r 1
1r 6 1r 5 15r 6 2 7r 6 106r 1 6r 6 1r 4 46r 6 2r 1 49r 6 8r 1
2r 6 1r 5 16r 6 2 7r 6 106r 1 4r 3 1 6 4 47r 6 2r 1 48r 6 4r 1
7r 6 5 18r 2 6r 6 107r 1 4r 3 1 6 4 47r 6 2r 1 60r 6 1r 5 18r 6
2 3r 6 3r 1 6 103r 1 5r 3 1 6 4 48r 6 2r 1 58r 6 1r 5 19r 6
2 6 3r 1 3r 6 103r 1 5r 3 1 6 4 48r 6 2r 1 57r 6 1r 5 20r 6
1r 1 7r 6 102r 1 5r 3 1r 1 6 4 48r 6 2r 1 57r 6 5 22r 1 8r 6
102r 1 5r 3 1r 1 6 4 48r 6 3r 1 55r 6 1r 5 22r 1 8r 6 102r 1
5r 3 1r 1 6 4 49r 6 2r 1 55r 6 5 23r 1 9r 6 100r 1 6r 3 1r 1
6 4 49r 6 3r 1 53r 6 5 24r 1 9r 6 100r 1 6r 3 1r 1 4 51r 6 2r 1
52r 6 1r 5 24r 1 9r 6 100r 1 6r 3 1r 6 4 52r 6 2r 1 51r 6 5
25r 1 9r 6 99r 1 7r 3 1r 6 4 52r 6 2r 1 50r 6 1r 5 25r 1 10r 6
98r 1 7r 3 1r 6 4 53r 6 3r 1 47r 6 2r 5 25r 1 10r 6 97r 1 8r 3
1r 6 1r 4 52r 6 6r 1 43r 6 2r 5 26r 1 10r 6 97r 1 8r 3 1r 6
1r 4 54r 6 44r 1 2r 6 3r 5 25r 6 1 10r 6 97r 1 8r 3 1r 6 1r 4
55r 6 49r 5 26r 6 1 11r 6 95r 1 9r 3 1 6 1r 4 56r 6 47r 5 27r 6
1 11r 6 95r 1 9r 3 1 6 4 57r 6 46r 5 28r 6 1 11r 6 95r 1 11r 6
4 58r 6 43r 5 30r 1 12r 6 94r 1 12r 6 4 58r 6 42r 5 30r 6 1
12r 6 94r 1 12r 6 4 58r 6 41r 5 31r 6 1 13r 6 93r 1 12r 6 4
57r 6 41r 5 32r 6 1 13r 6 92r 1 13r 6 4 57r 6 39r 5 34r 6 1
13r 6 92r 1 13r 6 1r 4 56r 6 37r 5 36r 6 1 13r 6 92r 1 13r 6
1r 4 55r 6 36r 5 38r 6 1 13r 6 91r 1 14r 6 1r 4 55r 6 33r 5
40r 6 1 15r 6 90r 1 14r 6 1r 4 54r 6 31r 5 43r 6 1 15r 6 90r 1
15r 6 4 54r 6 29r 5 45r 6 1 15r 6 89r 1 16r 6 4 53r 6 28r 5
47r 6 1 15r 6 89r 1 16r 6 4 53r 6 27r 5 48r 1 16r 6 89r 1 16r 6
4 52r 6 27r 5 48r 6 1 16r 6 89r 1 16r 6 4 52r 6 26r 5 49r 6
1 16r 6 88r 1 17r 6 1r 4 50r 6 26r 5 50r 1 17r 6 88r 1 17r 6

1r 4 50r 6 25r 5 50r 6 1 3 1r 1 14r 6 88r 1 17r 6 1r 4 49r 6
3r 1 10r 6 10r 5 51r 1 3 2r 1 14r 6 87r 1 19r 6 4 49r 6 1r 1
18r 6 3r 5 51r 6 1 3 1r 1 16r 6 86r 1 19r 6 1r 4 48r 6 1r 1
19r 6 2r 5 51r 6 3 2r 1 16r 6 86r 1 16r 3 1r 1 6 1r 4 47r 6
1r 1 21r 6 1r 5 51r 1 3 2r 1 16r 6 86r 1 16r 3 1r 1 1r 6 4 47r 6
1r 1 21r 6 1r 5 50r 6 1 3 1r 1 17r 6 85r 1 17r 3 2r 1 6 1r 4
46r 6 1r 1 22r 6 5 50r 6 3 2r 1 17r 6 85r 1 18r 3 1r 1 6 1r 4
46r 6 1 23r 6 5 49r 6 1 3 1r 1 18r 6 85r 1 18r 3 2r 1 6 4 46r 6
1 23r 6 5 49r 6 1 21r 6 85r 1 18r 3 2r 1 6 1r 4 45r 6 1 23r 6
5 48r 6 1 23r 6 84r 1 18r 3 3r 6 1r 4 45r 6 1 23r 6 5 48r 6
1 23r 6 83r 1 20r 3 2r 1 6 4 45r 6 1 7r 3 5r 1 9r 6 5 48r 6
1 23r 6 83r 1 21r 3 1r 1 6 4 44r 6 1r 1 6r 3 7r 1 8r 6 5 47r 6
1 24r 6 83r 1 21r 3 2r 6 1r 4 43r 6 1r 1 5r 3 10r 1 6r 6 5 47r 6
1 24r 6 83r 1 22r 3 1r 1 6 4 43r 6 1r 1 4r 3 12r 1 6r 5 46r 6
1 25r 6 83r 1 23r 3 1 6 1r 4 42r 6 1r 1 3r 3 13r 1 6r 5 46r 6
1 25r 6 83r 1 24r 3 1 6 4 42r 6 1 4r 3 14r 1 5r 5 45r 6 1 26r 6
83r 1 24r 3 1 6 4 42r 6 1 4r 3 15r 1 4r 6 5 44r 6 1 26r 6 83r 1
27r 6 4 40r 6 1r 1 4r 3 15r 1 4r 6 5 43r 6 1 27r 6 83r 1 27r 6
4 40r 6 1r 1 4r 3 15r 1 4r 6 5 42r 6 1r 1 27r 6 83r 1 28r 6
4 39r 6 1r 1 3r 3 16r 1 4r 6 5 42r 6 1 28r 6 84r 1 27r 6 1r 4
38r 6 1 4r 3 16r 1 4r 6 5 41r 6 1 29r 6 84r 1 28r 6 4 37r 6
1r 1 4r 3 16r 1 5r 5 40r 6 1r 1 3 1r 1 25r 6 85r 1 28r 6 1r 4
36r 6 1r 1 4r 3 17r 1 4r 6 5 39r 6 1 3 1r 1 26r 6 85r 1 29r 6
4 36r 6 1 5r 3 17r 1 4r 6 5 38r 6 1 3 2r 1 26r 6 86r 1 29r 6
4 34r 6 1r 1 5r 3 17r 1 5r 5 36r 6 1r 1 3 2r 1 27r 6 86r 1 29r 6
1r 4 33r 6 1r 1 4r 3 18r 1 5r 6 5 34r 6 1r 1 3 2r 1 27r 6 87r 1
30r 6 1r 4 32r 6 1 5r 3 18r 1 5r 6 5 33r 6 1r 1 3 2r 1 28r 6
87r 1 31r 6 1r 4 30r 6 1r 1 5r 3 19r 1 5r 6 5 31r 6 1r 1 1r 3
1r 1 28r 6 89r 1 31r 6 1r 4 28r 6 1r 1 6r 3 19r 1 6r 6 5 29r 6
1r 1 1r 3 1r 1 29r 6 89r 1 32r 6 1r 4 27r 6 1r 1 5r 3 20r 1
6r 6 5 28r 6 1r 1 1r 3 1r 1 29r 6 91r 1 32r 6 2r 4 24r 6 1r 1
6r 3 20r 1 7r 6 5 26r 6 1r 1 34r 6 92r 1 27r 3 2r 1 1r 6 2r 4
22r 6 1r 1 6r 3 21r 1 8r 6 5 24r 6 1 35r 6 93r 1 27r 3 4r 1
1r 6 1r 4 20r 6 1r 1 7r 3 22r 1 8r 6 5 21r 6 1r 1 36r 6 94r 1
27r 3 4r 1 1r 6 2r 4 17r 6 1r 1 7r 3 23r 1 9r 6 1r 5 18r 6 1
37r 6 96r 1 28r 3 3r 1 1r 6 3r 4 13r 6 2r 1 7r 3 24r 1 11r 6
3r 5 11r 6 2r 1 37r 6 98r 1 28r 3 4r 1 1r 6 3r 4 4r 6 8r 1 8r 3
25r 1 13r 6 12r 1 39r 6 99r 1 30r 3 3r 1 2r 6 13r 1 10r 3 25r 1
65r 6 102r 1 30r 3 4r 1 1r 6 8r 1 13r 3 25r 1 63r 6 106r 1 32r 3
1 25r 3 24r 1 62r 6 109r 1 45r 3 3r 1 8r 3 22r 1 10r 3 3r 1
46r 6 112r 1 42r 3 4r 1 11r 3 18r 1 12r 3 7r 1 39r 6 117r 1
38r 3 5r 1 44r 3 7r 1 37r 6 123r 1 34r 3 1r 1 51r 3 1r 1 37r 6
129r 1 123r 6 134r 1 117r 6 141r 1 110r 6 148r 1 50r 6 4r 1
46r 6 158r 1 40r 6 15r 1 34r 6 173r 1 10r 6 47r 1 14r 6 32191r 2
12r 6 236r 2 26r 6 225r 2 34r 6 217r 2 68r 6 184r 2 76r 6 176r 2
81r 6 171r 2 86r 6 167r 2 89r 6 163r 2 20r 6 11r 2 9r 3 10r 2
39r 6 160r 2 16r 6 6r 4 5r 6 10r 2 2r 3 2 3 8r 2 41r 6 157r 2
12r 6 4r 4 20r 6 10r 2 3r 6 21r 2 23r 6 153r 2 10r 6 4r 4 25r 6
9r 1 3r 6 27r 2 19r 6 150r 2 9r 6 2r 4 29r 6 5r 1 9r 6 30r 2
15r 6 148r 2 8r 6 2r 4 31r 6 4r 1 10r 6 34r 2 13r 6 145r 2 8r 6
1r 4 34r 6 2r 1 30r 6 11r 1 2r 6 3r 2 11r 6 144r 2 6r 6 1r 4
36r 6 1r 1 47r 6 4r 2 10r 6 142r 2 5r 6 1r 4 38r 6 1r 1 49r 6
3r 2 10r 6 140r 2 5r 6 1r 4 39r 6 1 51r 6 4r 2 9r 6 138r 2 5r 6
4 42r 1 52r 6 5r 2 8r 6 136r 2 5r 6 4 42r 1 54r 6 5r 2 8r 6

134r 2 6r 6 4 42r 1 55r 6 5r 2 8r 6 133r 2 5r 6 4 42r 6 1 56r 6 5r 2 8r 6 131r 2 5r 6 4 43r 6 1 57r 6 5r 2 8r 6 129r 2 6r 6 4 42r 6 1r 1 58r 6 5r 2 8r 6 127r 2 6r 6 4 43r 6 1 60r 6 5r 2 7r 6 127r 2 5r 6 4 43r 6 1 61r 6 6r 2 7r 6 125r 2 6r 6 4 42r 6 1r 1 62r 6 1r 1 1r 6 1r 2 8r 6 124r 2 5r 6 4 43r 6 1 67r 6 2r 2 8r 6 122r 2 5r 6 4 43r 6 1 69r 6 2r 2 7r 6 121r 2 6r 6 4 43r 1 71r 6 1r 2 8r 6 120r 2 5r 6 1r 4 42r 6 1 71r 6 2r 2 7r 6 119r 2 6r 6 4 42r 6 1 73r 6 2r 2 7r 6 118r 2 5r 6 4 43r 1 74r 6 2r 2 7r 6 117r 2 5r 6 1r 4 42r 6 1 75r 6 2r 2 7r 6 115r 2 6r 6 1r 4 42r 6 1 75r 6 3r 2 2 3 2 5r 6 115r 2 5r 6 1r 4 42r 6 1 76r 6 3r 3 1r 2 4r 6 114r 2 6r 6 1r 4 42r 6 1 76r 6 3r 2 3 2 5r 6 113r 2 5r 6 1r 4 43r 6 1 75r 6 4r 2 3 1r 2 4r 6 112r 2 5r 6 2r 4 43r 1 75r 6 5r 2 3 1r 2 5r 6 111r 2 5r 6 1r 4 44r 6 1 73r 6 7r 2 3 2 5r 6 110r 2 5r 6 2r 4 44r 6 1 68r 6 1r 1 1r 6 3r 5 1r 6 2r 2 3 1r 2 4r 6 110r 2 5r 6 2r 4 44r 6 1 67r 6 2r 1 6 5 6r 6 1r 2 3 1r 2 5r 6 108r 2 6r 6 1r 4 45r 6 1 67r 6 3r 5 8r 6 1r 3 1r 2 5r 6 108r 2 5r 6 2r 4 45r 6 1r 1 65r 6 2r 5 11r 6 2 3 2 5r 6 108r 2 5r 6 1r 4 47r 6 1 64r 6 2r 5 12r 6 2 3 2 6r 6 110r 2 2r 6 1r 4 47r 6 1 63r 6 2r 5 14r 2 3 1r 2 5r 6 115r 4 47r 6 1 61r 6 3r 5 15r 6 2 3 2 5r 6 107r 1 2r 6 4r 4 47r 6 1r 1 58r 6 5r 5 15r 6 2 3 2 5r 6 106r 1 6r 6 1r 4 48r 6 1 55r 6 7r 5 16r 6 2 8r 6 105r 1 6r 6 1r 4 48r 6 1 53r 6 8r 5 17r 6 2 8r 6 105r 1 6r 6 4 49r 6 1 51r 6 3r 1 2r 6 3r 5 18r 6 2 5r 6 106r 1 7r 6 4 49r 6 1r 1 57r 6 2r 5 19r 6 2 1r 6 4r 1 1r 6 103r 1 5r 3 1 6 4 49r 6 1r 1 56r 6 3r 5 19r 6 4r 1 4r 6 103r 1 5r 3 1 6 4 50r 6 1 56r 6 2r 5 21r 6 1 7r 6 102r 1 5r 3 1r 1 6 4 50r 6 1r 1 55r 6 2r 5 21r 1 9r 6 101r 1 5r 3 1r 1 6 4 51r 6 1 54r 6 2r 5 22r 1 9r 6 100r 1 6r 3 1r 1 6 4 51r 6 1r 1 53r 6 1r 5 23r 1 9r 6 100r 1 6r 3 1r 1 6 4 52r 6 1 52r 6 1r 5 24r 1 9r 6 100r 1 6r 3 1r 1 6 4 52r 6 1r 1 50r 6 1r 5 25r 1 9r 6 99r 1 7r 3 1r 1 6 4 53r 6 1 50r 6 1r 5 25r 1 10r 6 98r 1 7r 3 1r 1 6 4 53r 6 4r 1 45r 6 1r 5 26r 1 10r 6 97r 1 8r 3 1r 6 1r 4 54r 6 5r 1 3r 6 8r 1 29r 6 1r 5 27r 1 10r 6 97r 1 8r 3 1r 6 1r 4 54r 6 44r 1 2r 6 1r 5 27r 6 1 10r 6 97r 1 8r 3 1r 6 1r 4 55r 6 47r 5 28r 6 1 11r 6 95r 1 9r 3 1r 6 1r 4 55r 6 46r 5 29r 6 1 11r 6 95r 1 9r 3 1r 6 1r 4 56r 6 44r 5 30r 6 1 11r 6 95r 1 9r 3 1r 6 1r 4 56r 6 43r 5 31r 1 12r 6 94r 1 10r 3 1r 6 1r 4 57r 6 40r 5 32r 6 1 12r 6 94r 1 10r 3 1r 6 1r 4 57r 6 39r 5 33r 6 1 13r 6 93r 1 12r 6 1r 4 56r 6 39r 5 34r 6 1 13r 6 92r 1 13r 6 1r 4 56r 6 38r 5 35r 6 1 13r 6 92r 1 13r 6 1r 4 56r 6 35r 5 38r 6 1 13r 6 92r 1 14r 6 4 55r 6 34r 5 40r 6 1 13r 6 91r 1 15r 6 4 55r 6 31r 5 42r 6 1 15r 6 90r 1 15r 6 4 54r 6 30r 5 44r 6 1 15r 6 90r 1 15r 6 4 54r 6 28r 5 46r 6 1 15r 6 89r 1 16r 6 4 53r 6 27r 5 48r 6 1 15r 6 89r 1 16r 6 4 53r 6 26r 5 49r 1 16r 6 89r 1 16r 6 1r 4 51r 6 27r 5 48r 6 1 16r 6 89r 1 16r 6 1r 4 51r 6 26r 5 49r 6 1 16r 6 88r 1 17r 6 1r 4 50r 6 26r 5 50r 1 17r 6 88r 1 17r 6 1r 4 50r 6 26r 5 49r 6 1 17r 6 88r 1 18r 6 4 50r 6 2r 1 10r 6 11r 5 50r 6 1 3 1 15r 6 87r 1 19r 6 4 49r 6 1r 1 18r 6 5r 5 49r 6 1 3 1r 1 16r 6 86r 1 19r 6 4 49r 6 1r 1 19r 6 3r 5 50r 6 3 2r 1 16r 6 86r 1 19r 6 4 49r 6 1 21r 6 2r 5 50r 1 3 2r 1 16r 6 85r 1 21r 6 4 47r 6 1r 1 21r 6 2r 5 49r 6 1 3 1r 1 17r 6 85r 1 21r 6 4 47r 6 1r 1 21r 6 1r 5 50r 1 3 2r 1 17r 6 85r 1 18r 3 1 1r 6 4 47r 6 1r 1 22r 6 5 49r 6 1 3 1r 1 18r 6 85r 1 18r 3 1r 1 1r 6 4 46r 6 1 23r 6 5 49r 6 1

3 1r 1 18r 6 85r 1 18r 3 2r 1 6 4 46r 6 1 23r 6 5 48r 6 1 1r 3 1 20r 6 83r 1 19r 3 2r 1 6 4 46r 6 1 23r 6 5 48r 6 1 23r 6 83r 1 20r 3 2r 1 6 4 45r 6 1 7r 3 5r 1 9r 6 5 48r 6 1 23r 6 83r 1 20r 3 2r 1 6 4 44r 6 1r 1 6r 3 7r 1 8r 6 5 47r 6 1 24r 6 83r 1 21r 3 2r 1 6 4 43r 6 1r 1 5r 3 10r 1 6r 6 5 47r 6 1 24r 6 83r 1 21r 3 2r 1 6 4 43r 6 1r 1 4r 3 12r 1 6r 5 46r 6 1 25r 6 83r 1 22r 3 2r 6 1r 4 42r 6 1r 1 3r 3 13r 1 6r 5 46r 6 1 25r 6 83r 1 23r 3 1r 1 6 4 42r 6 1 4r 3 14r 1 5r 5 45r 6 1 26r 6 83r 1 23r 3 2r 6 1r 4 41r 6 1 4r 3 14r 1 5r 5 45r 6 1 26r 6 83r 1 24r 3 1r 1 6 4 40r 6 1r 1 4r 3 15r 1 4r 6 5 43r 6 1 27r 6 83r 1 25r 3 1r 6 4 40r 6 1r 1 3r 3 16r 1 4r 6 5 42r 6 1r 1 27r 6 83r 1 26r 3 1 6 4 39r 6 1r 1 3r 3 16r 1 4r 6 5 42r 6 1 28r 6 83r 1 29r 6 4 38r 6 1 4r 3 16r 1 4r 6 5 41r 6 1 29r 6 84r 1 28r 6 1r 4 36r 6 1r 1 4r 3 16r 1 4r 6 5 40r 6 1r 1 28r 6 85r 1 29r 6 4 36r 6 1r 1 4r 3 17r 1 4r 5 40r 6 1 1r 3 1 26r 6 85r 1 29r 6 1r 4 35r 6 1 5r 3 17r 1 4r 6 5 38r 6 1 3 2r 1 26r 6 85r 1 30r 6 4 34r 6 1r 1 5r 3 17r 1 4r 6 5 36r 6 1r 1 3 2r 1 27r 6 86r 1 29r 6 1r 4 33r 6 1r 1 4r 3 18r 1 5r 6 5 34r 6 1r 1 3 2r 1 27r 6 87r 1 30r 6 1r 4 31r 6 1r 1 5r 3 18r 1 5r 6 5 33r 6 1r 1 3 2r 1 28r 6 87r 1 31r 6 1r 4 30r 6 1r 1 5r 3 19r 1 5r 6 5 31r 6 1r 1 3 2r 1 29r 6 88r 1 31r 6 1r 4 28r 6 1r 1 6r 3 19r 1 6r 6 5 29r 6 1r 1 3 2r 1 29r 6 89r 1 32r 6 1r 4 27r 6 1r 1 5r 3 20r 1 6r 6 5 28r 6 1r 1 1r 3 1r 1 30r 6 90r 1 32r 6 2r 4 24r 6 1r 1 6r 3 20r 1 7r 6 5 26r 6 1r 1 1r 3 1r 1 30r 6 91r 1 33r 6 2r 4 22r 6 1r 1 6r 3 21r 1 7r 6 5 25r 6 1r 1 34r 6 93r 1 29r 3 1 3r 6 2r 4 19r 6 1r 1 7r 3 21r 1 8r 6 1r 5 21r 6 1r 1 36r 6 94r 1 28r 3 3r 1 1r 6 2r 4 17r 6 1r 1 7r 3 23r 1 9r 6 1r 5 18r 6 1 37r 6 96r 1 28r 3 4r 1 1r 6 2r 4 13r 6 2r 1 8r 3 23r 1 11r 6 3r 5 11r 6 2r 1 37r 6 97r 1 29r 3 4r 1 1r 6 3r 4 4r 6 8r 1 8r 3 24r 1 14r 6 12r 1 39r 6 99r 1 29r 3 5r 1 1r 6 13r 1 10r 3 24r 1 66r 6 102r 1 29r 3 5r 1 1r 6 9r 1 5r 3 1 5r 3 24r 1 64r 6 106r 1 29r 3 5r 1 13r 3 2r 1 6r 3 23r 1 8r 3 1r 1 52r 6 108r 1 31r 3 2r 1 12r 3 3r 1 7r 3 21r 1 9r 3 4r 1 47r 6 112r 1 43r 3 4r 1 10r 3 17r 1 11r 3 7r 1 41r 6 117r 1 40r 3 3r 1 42r 3 7r 1 39r 6 122r 1 130r 6 128r 1 123r 6 134r 1 117r 6 141r 1 110r 6 147r 1 50r 6 5r 1 46r 6 158r 1 39r 6 16r 1 34r 6 172r 1 12r 6 46r 1 15r 6 32192r 2 8r 6 239r 2 23r 6 228r 2 32r 6 219r 2 65r 6 187r 2 74r 6 177r 2 81r 6 172r 2 85r 6 167r 2 89r 6 163r 2 23r 6 4r 2 16r 3 7r 2 39r 6 160r 2 17r 6 20r 2 5r 3 9r 2 41r 6 157r 2 13r 6 4r 4 17r 6 12r 2 4r 6 17r 2 25r 6 155r 2 10r 6 4r 4 25r 6 38r 2 20r 6 152r 2 9r 6 2r 4 29r 6 5r 1 3r 6 35r 2 15r 6 149r 2 8r 6 1r 4 33r 6 2r 1 7r 6 37r 2 12r 6 147r 2 7r 6 1r 4 35r 6 1r 1 10r 6 3r 1 12r 6 11r 1 3r 6 4r 2 12r 6 144r 2 6r 6 1r 4 37r 6 1r 1 46r 6 3r 2 11r 6 142r 2 5r 6 1r 4 39r 6 1 48r 6 4r 2 10r 6 140r 2 5r 6 1r 4 39r 6 1 51r 6 3r 2 10r 6 138r 2 5r 6 4 40r 6 1r 1 52r 6 4r 2 9r 6 136r 2 6r 6 4 40r 6 1r 1 53r 6 5r 2 8r 6 135r 2 5r 6 4 40r 6 1r 1 55r 6 5r 2 8r 6 133r 2 5r 6 4 41r 6 1r 1 55r 6 6r 2 8r 6 131r 2 6r 4 42r 6 1r 1 56r 6 6r 2 8r 6 129r 2 6r 6 4 42r 6 1 58r 6 6r 2 7r 6 129r 2 5r 6 4 42r 1 61r 6 6r 2 8r 6 125r 2 6r 4 43r 1 67r 6 2r 2 8r 6 124r 2 5r 6 4 43r 1 68r 6 2r 2 7r 6 123r 2 6r 6 4 42r 1 70r 6 2r 2 7r 6 121r 2 6r 6 4 42r 1 72r 6 1r 2 8r 6 120r 2 5r 6 4 43r 1 72r 6 2r 2 7r 6 119r 2 6r 6 4 42r 1 74r 6 1r 2 8r 6 118r 2 5r 6 4 42r 1 75r 6 2r 2 7r 6 117r 2 6r 6 4 42r 1 75r 6

3r 2 6r 6 117r 2 5r 6 4 43r 1 75r 6 3r 2 7r 6 115r 2 5r 6 1r 4 42r 1 76r 6 3r 2 7r 6 115r 2 5r 6 1r 4 42r 1 75r 6 5r 2 7r 6 113r 2 5r 6 1r 4 42r 1 75r 6 6r 2 7r 6 112r 2 6r 6 1r 4 42r 1 74r 6 7r 2 1r 3 2 4r 6 112r 2 5r 6 2r 4 42r 1 72r 6 3r 5 1r 6 4r 2 3 2 5r 6 110r 2 6r 6 1r 4 43r 6 1 69r 6 3r 5 5r 6 2r 2 3 1r 2 4r 6 110r 2 5r 6 2r 4 43r 6 1 69r 6 2r 5 7r 6 1r 2 3 1r 2 5r 6 109r 2 5r 6 1r 4 45r 1 68r 6 2r 5 9r 6 1r 3 1r 2 5r 6 108r 2 6r 6 1r 4 45r 1 68r 6 1r 5 11r 6 2 3 2 5r 6 108r 2 5r 6 2r 4 45r 6 1 66r 6 1r 5 12r 6 2 3 2 6r 6 109r 2 3r 6 1r 4 47r 1 65r 6 1r 5 13r 6 2 3 1r 2 5r 6 107r 1 1r 6 1r 2 1r 6 1r 4 47r 1 64r 6 1r 5 15r 6 3 1r 2 5r 6 107r 1 4r 6 2r 4 47r 6 1 62r 6 1r 5 16r 6 3 1r 2 5r 6 106r 1 6r 6 4 48r 6 1 61r 6 1r 5 17r 6 2 3 2 6r 6 105r 1 7r 4 48r 6 1 60r 6 2r 5 17r 6 2 3 2 6r 6 105r 1 7r 4 48r 6 1 59r 6 2r 5 18r 6 1r 2 6r 6 105r 1 7r 6 4 49r 6 1 57r 6 2r 5 20r 6 2 2r 6 4r 1 6 103r 1 7r 6 4 49r 6 1 56r 6 2r 5 21r 6 5r 1 3r 6 103r 1 7r 6 4 49r 6 1r 1 55r 6 2r 5 22r 6 1 7r 6 102r 1 8r 6 4 50r 6 1 55r 6 1r 5 22r 6 1 9r 6 101r 1 8r 6 4 50r 6 1 54r 6 1r 5 23r 6 1 9r 6 100r 1 6r 3 1 1r 6 4 51r 6 1 53r 6 1r 5 24r 6 1 9r 6 100r 1 6r 3 1 1r 6 4 52r 6 1 52r 6 1r 5 24r 1 9r 6 100r 1 6r 3 1r 1 6 4 52r 6 1r 1 50r 6 1r 5 25r 1 9r 6 99r 1 7r 3 1r 1 6 4 53r 6 1 50r 6 1r 5 25r 1 10r 6 98r 1 7r 3 1r 1 6 4 53r 6 4r 1 45r 6 1r 5 26r 1 10r 6 97r 1 8r 3 1r 6 1r 4 54r 6 5r 1 3r 6 8r 1 29r 6 1r 5 27r 1 10r 6 97r 1 8r 3 1r 6 1r 4 54r 6 44r 1 2r 6 1r 5 27r 6 1 10r 6 97r 1 8r 3 1r 6 1r 4 55r 6 47r 5 28r 6 1 11r 6 95r 1 9r 3 1r 6 1r 4 55r 6 46r 5 29r 6 1 11r 6 95r 1 9r 3 1r 6 1r 4 56r 6 44r 5 30r 6 1 11r 6 95r 1 9r 3 1r 6 1r 4 56r 6 43r 5 31r 1 12r 6 94r 1 10r 3 1r 6 1r 4 57r 6 40r 5 32r 6 1 12r 6 94r 1 10r 3 1r 6 1r 4 57r 6 39r 5 33r 6 1 13r 6 93r 1 12r 6 1r 4 56r 6 39r 5 34r 6 1 13r 6 92r 1 13r 6 1r 4 56r 6 38r 5 35r 6 1 13r 6 92r 1 13r 6 1r 4 56r 6 35r 5 38r 6 1 13r 6 92r 1 14r 6 4 55r 6 34r 5 40r 6 1 13r 6 91r 1 15r 6 4 55r 6 31r 5 42r 6 1 15r 6 90r 1 15r 6 4 54r 6 30r 5 44r 6 1 15r 6 90r 1 15r 6 4 54r 6 28r 5 46r 6 1 15r 6 89r 1 16r 6 4 53r 6 27r 5 48r 6 1 15r 6 89r 1 16r 6 4 53r 6 26r 5 49r 1 16r 6 89r 1 16r 6 1r 4 51r 6 27r 5 48r 6 1 16r 6 89r 1 16r 6 1r 4 51r 6 26r 5 49r 6 1 16r 6 88r 1 17r 6 1r 4 50r 6 26r 5 50r 1 17r 6 88r 1 17r 6 1r 4 50r 6 26r 5 49r 6 1 17r 6 88r 1 18r 6 4 50r 6 2r 1 10r 6 11r 5 50r 6 1 3 1 15r 6 87r 1 19r 6 4 49r 6 1r 1 18r 6 5r 5 49r 6 1 3 1r 1 16r 6 86r 1 19r 6 4 49r 6 1r 1 19r 6 3r 5 50r 6 3 2r 1 16r 6 86r 1 19r 6 4 49r 6 1 21r 6 2r 5 50r 1 3 2r 1 16r 6 85r 1 21r 6 4 47r 6 1r 1 21r 6 2r 5 49r 6 1 3 1r 1 17r 6 85r 1 21r 6 4 47r 6 1r 1 21r 6 1r 5 50r 1 3 2r 1 17r 6 85r 1 18r 3 1 1r 6 4 47r 6 1r 1 22r 6 5 49r 6 1 3 1r 1 18r 6 85r 1 18r 3 1r 1 1r 6 4 46r 6 1 23r 6 5 49r 6 1

83r 1 24r 3 2r 1 6 4 40r 6 1 3r 3 16r 1 4r 5 43r 6 1r 1 27r 6 83r 1 25r 3 1r 1 6 1r 4 38r 6 1r 1 3r 3 16r 1 4r 6 5 42r 6 1 28r 6 83r 1 26r 3 1r 1 6 4 38r 6 1 4r 3 16r 1 4r 6 5 41r 6 1 29r 6 83r 1 27r 3 1r 1 6 4 37r 6 1 4r 3 16r 1 4r 6 5 40r 6 1r 1 29r 6 84r 1 27r 3 1 6 4 36r 6 1r 1 4r 3 16r 1 5r 5 40r 6 1 29r 6 85r 1 30r 6 4 35r 6 1 5r 3 17r 1 4r 6 5 38r 6 1 30r 6 85r 1 30r 6 4 34r 6 1r 1 5r 3 17r 1 4r 6 5 37r 6 1 1r 3 1r 1 27r 6 85r 1 31r 6 4 33r 6 1r 1 5r 3 17r 1 5r 6 5 34r 6 1r 1 1r 3 1r 1 28r 6 86r 1 30r 6 1r 4 32r 6 1 5r 3 18r 1 5r 6 5 33r 6 1r 1 1r 3 1r 1 28r 6 87r 1 31r 6 1r 4 30r 6 1r 1 5r 3 18r 1 6r 6 5 32r 6 1 3 2r 1 29r 6 88r 1 31r 6 1r 4 28r 6 1r 1 6r 3 19r 1 5r 6 5 31r 6 1 3 2r 1 29r 6 89r 1 32r 6 2r 4 26r 6 1r 1 5r 3 20r 1 6r 6 5 29r 6 1 3 2r 1 30r 6 90r 1 32r 6 2r 4 24r 6 1r 1 6r 3 20r 1 6r 6 5 27r 6 1r 1 1r 3 1r 1 30r 6 91r 1 34r 6 1r 4 22r 6 1r 1 6r 3 21r 1 7r 6 5 25r 6 1r 1 1r 3 1r 1 31r 6 92r 1 34r 6 2r 4 19r 6 1r 1 7r 3 21r 1 8r 6 5 22r 6 1r 1 36r 6 94r 1 35r 6 1r 4 17r 6 1r 1 7r 3 22r 1 9r 6 1r 5 19r 6 1 37r 6 96r 1 28r 3 3r 1 2r 6 2r 4 13r 6 2r 1 8r 3 22r 1 11r 6 4r 5 10r 6 3r 1 37r 6 97r 1 29r 3 4r 1 2r 6 2r 4 5r 6 7r 1 8r 3 23r 1 15r 6 12r 1 39r 6 99r 1 29r 3 5r 1 1r 6 13r 1 4r 3 1r 1 3r 3 23r 1 67r 6 102r 1 28r 3 6r 1 2r 6 8r 1 5r 3 2r 1 4r 3 22r 1 7r 3 1 57r 6 104r 1 29r 3 6r 1 14r 3 3r 1 4r 3 22r 1 7r 3 3r 1 52r 6 108r 1 29r 3 5r 1 12r 3 3r 1 6r 3 21r 1 7r 3 5r 1 48r 6 112r 1 44r 3 3r 1 9r 3 18r 1 9r 3 7r 1 43r 6 117r 1 42r 3 1r 1 41r 3 5r 1 42r 6 122r 1 130r 6 127r 1 124r 6 134r 1 117r 6 140r 1 111r 6 147r 1 50r 6 6r 1 45r 6 157r 1 40r 6 17r 1 33r 6 171r 1 14r 6 46r 1 14r 6 32195r 2 2r 6 243r 2 21r 6 229r 2 31r 6 220r 2 41r 6 7r 2 13r 6 189r 2 73r 6 179r 2 79r 6 173r 2 84r 6 168r 2 88r 6 165r 2 46r 3 4r 2 39r 6 161r 2 17r 6 6r 4 4r 6 7r 2 7r 3 8r 2 40r 6 158r 2 14r 6 2r 4 17r 6 10r 2 9r 6 9r 2 31r 6 155r 2 11r 6 2r 4 26r 6 38r 2 20r 6 152r 2 9r 6 1r 4 30r 6 45r 2 15r 6 149r 2 8r 6 4 33r 6 2r 1 5r 6 39r 2 13r 6 147r 2 7r 6 1r 4 35r 6 1r 1 27r 6 12r 1 2r 6 3r 2 12r 6 145r 2 6r 6 1r 4 37r 6 1 36r 6 2r 1 6r 6 3r 2 12r 6 142r 2 6r 6 1r 4 38r 6 1 48r 6 3r 2 11r 6 140r 2 5r 6 2r 4 38r 6 1 50r 6 4r 2 10r 6 138r 2 6r 6 4 40r 6 1 51r 6 4r 2 10r 6 136r 2 6r 6 1r 4 39r 6 1 53r 6 5r 2 9r 6 135r 2 5r 6 1r 4 40r 6 1 55r 6 4r 2 9r 6 133r 2 5r 6 1r 4 40r 6 1 57r 6 4r 2 9r 6 131r 2 6r 6 4 41r 6 1 58r 6 4r 2 8r 6 130r 2 6r 6 1r 4 41r 1 59r 6 5r 2 8r 6 129r 2 5r 6 1r 4 41r 6 1 60r 6 5r 2 8r 6 127r 2 6r 6 4 42r 1 61r 6 6r 2 8r 6 125r 2 6r 6 1r 4 41r 6 1 63r 6 5r 2 7r 6 125r 2 5r 6 1r 4 41r 6 1 68r 6 2r 2 7r 6 123r 2 6r 6 4 42r 1 69r 6 2r 2 8r 6 121r 2 6r 6 1r 4 41r 6 1 70r 6 2r 2 7r 6 121r 2 6r 6 4 41r 6 1 71r 6 3r 2 7r 6 119r 2 6r 6 4 42r 6 1 71r 6 3r 2 7r 6 119r 2 5r 6 4 42r 6 1 73r 6 3r 2 7r 6 117r 2 6r 4 42r 6 1 74r 6 3r 2 7r 6 117r 2 5r 6 4 42r 6 1 73r 6 5r 2 7r 6 115r 2 5r 6 1r 4 41r 6 1 74r 6 5r 2 7r 6 115r 2 5r 6 4 42r 6 1 73r 6 6r 2 8r 6 113r 2 5r 6 1r 4 42r 6 1 72r 6 8r 2 7r 6 113r 2 5r 6 4 42r 6 1 72r 6 9r 2 7r 6 112r 2 5r 6 1r 4 42r 6 1 71r 6 3r 5 5r 6 2 8r 6 111r 2 5r 6 1r 4 43r 1 71r 6 2r 5 7r 6 2 3 2 5r 6 110r 2 5r 6 2r 4 43r 1 70r 6 2r 5 8r 6 2 3 1r 2 4r 6 110r 2 5r 6 1r 4 44r 1 69r 6 2r 5 10r 2 3 1r 2 5r 6 108r 2 6r 6 1r 4 45r 1 68r 6 1r 5 11r 6 2 3 2 5r 6 109r 2 5r 6 1r 4 45r 1 67r 6 1r 5 12r 6 2 3 2 6r 6 111r 2 1r 6 1r 4 46r 1 67r 6 5 13r 6 2 3 1r 2 5r 6 107r 1 6 7r 4 46r 1 65r 6

1r 5 14r 2 3 1r 2 5r 6 107r 1 4r 6 2r 4 47r 1 64r 6 1r 5 15r 6
3 1r 2 5r 6 106r 1 6r 6 1r 4 47r 1 63r 6 2r 5 15r 6 3 1r 2 6r 6
105r 1 7r 6 4 47r 6 1 61r 6 2r 5 16r 6 2 3 2 6r 6 105r 1 7r 6
4 48r 1 60r 6 2r 5 17r 6 2 3 2 5r 6 105r 1 8r 6 4 48r 6 1 58r 6
3r 5 17r 6 2 3 2 2r 6 1r 1 2r 6 103r 1 8r 4 49r 6 1 57r 6 3r 5
19r 2 6 1r 1 6r 6 102r 1 8r 6 1r 4 49r 1 56r 6 3r 5 20r 6 1
8r 6 102r 1 8r 6 1r 4 49r 6 1 54r 6 4r 5 20r 6 1 9r 6 101r 1
8r 6 4 50r 6 1 53r 6 4r 5 21r 6 1 9r 6 100r 1 9r 6 4 51r 6 1
51r 6 4r 5 22r 6 1 9r 6 100r 1 9r 6 4 51r 6 1 50r 6 4r 5 23r 6
1 9r 6 100r 1 9r 6 4 52r 6 1 48r 6 5r 5 23r 6 1 9r 6 99r 1 7r 3
1 1r 6 4 53r 6 1 46r 6 5r 5 24r 6 1 10r 6 98r 1 7r 3 1 1r 6
4 53r 6 1 44r 6 6r 5 25r 6 1 10r 6 97r 1 8r 3 1 1r 6 4 54r 6
1 41r 6 7r 5 26r 6 1 10r 6 97r 1 7r 3 1r 1 6 1r 4 56r 1 38r 6
8r 5 27r 6 1 10r 6 97r 1 7r 3 1r 1 6 1r 4 57r 1 35r 6 9r 5 28r 6
1 11r 6 95r 1 8r 3 2r 6 1r 4 58r 1 31r 6 11r 5 29r 6 1 11r 6
95r 1 8r 3 2r 6 1r 4 58r 6 1 28r 6 12r 5 30r 1 12r 6 95r 1 8r 3
2r 6 1r 4 59r 1 27r 6 12r 5 30r 6 1 12r 6 94r 1 10r 3 1r 6 1r 4
59r 6 1 25r 6 12r 5 31r 6 1 12r 6 94r 1 10r 3 1r 6 1r 4 59r 6
1 24r 6 11r 5 33r 6 1 13r 6 93r 1 10r 3 1r 1 4 60r 6 1 23r 6
11r 5 34r 6 1 13r 6 92r 1 11r 3 1r 1 4 59r 6 1r 1 22r 6 10r 5
36r 6 1 13r 6 92r 1 11r 3 1r 1 4 58r 6 1 23r 6 9r 5 38r 1 14r 6
91r 1 12r 3 1r 1 4 58r 6 1 23r 6 7r 5 39r 6 1 14r 6 91r 1 13r 3
1 4 57r 6 1 23r 6 5r 5 42r 6 1 15r 6 90r 1 13r 3 1 6 4 56r 6
1 22r 6 4r 5 44r 6 1 15r 6 90r 1 13r 3 1 6 4 55r 6 1 22r 6 3r 5
46r 1 16r 6 89r 1 16r 6 4 55r 6 1 21r 6 2r 5 47r 6 1 16r 6 89r 1
16r 6 4 54r 6 1 21r 6 1r 5 49r 6 1 16r 6 89r 1 16r 6 4 53r 6
1r 1 21r 6 5 50r 6 1 16r 6 89r 1 16r 6 4 53r 6 1 21r 6 5 51r 6
1 16r 6 88r 1 18r 4 52r 6 1 22r 6 5 50r 6 1 17r 6 88r 1 18r 6
4 51r 6 1 22r 5 51r 6 1 17r 6 88r 1 18r 6 4 51r 6 1 21r 6 5
51r 1 19r 6 86r 1 19r 6 4 50r 6 1 21r 6 5 51r 6 1 19r 6 86r 1
19r 6 4 50r 6 1 19r 6 1r 5 52r 6 1 19r 6 86r 1 20r 4 49r 6 1
20r 6 1r 5 52r 1 20r 6 85r 1 21r 4 49r 6 1 21r 5 52r 6 1 3 1r 1
17r 6 85r 1 21r 4 49r 6 1 21r 5 52r 1 3 2r 1 17r 6 85r 1 21r 6
4 48r 6 1 21r 6 5 50r 6 1 3 1r 1 18r 6 85r 1 22r 4 48r 1 23r 5
49r 6 1 3 2r 1 18r 6 84r 1 23r 4 47r 6 1 23r 5 49r 6 1 3 2r 1
19r 6 83r 1 23r 6 4 46r 6 1 23r 5 49r 6 3 2r 1 20r 6 83r 1 24r 4
46r 6 1 7r 3 4r 1 10r 5 48r 6 1 3 2r 1 20r 6 83r 1 24r 6 4 45r 6
1 6r 3 7r 1 8r 6 5 47r 6 1 3 1r 1 21r 6 83r 1 20r 3 2r 1 1r 4
45r 6 1 5r 3 9r 1 7r 6 5 46r 6 1 25r 6 83r 1 20r 3 3r 1 6 4
44r 6 1 4r 3 11r 1 6r 6 5 46r 6 1 25r 6 83r 1 21r 3 3r 1 4 44r 6
1 4r 3 12r 1 5r 6 5 45r 6 1 26r 6 83r 1 21r 3 3r 1 6 4 43r 6
1 3r 3 13r 1 6r 5 45r 6 1 26r 6 83r 1 22r 3 3r 1 4 42r 6 1 4r 3
14r 1 5r 5 44r 6 1r 1 26r 6 83r 1 22r 3 3r 1 6 4 41r 6 1 4r 3
14r 1 5r 5 44r 6 1 27r 6 83r 1 23r 3 3r 1 4 41r 6 1 3r 3 16r 1
4r 5 43r 6 1 28r 6 83r 1 24r 3 3r 6 4 40r 6 1 3r 3 16r 1 4r 5
43r 6 1 28r 6 83r 1 25r 3 2r 1 6 4 38r 6 1 4r 3 16r 1 4r 5 42r 6
1 29r 6 83r 1 26r 3 2r 1 6 4 37r 6 1 4r 3 16r 1 4r 6 5 40r 6
1r 1 29r 6 83r 1 27r 3 1r 1 6 4 37r 6 1 3r 3 17r 1 4r 6 5 40r 6
1 29r 6 85r 1 27r 3 1r 1 6 4 35r 6 1 5r 3 17r 1 4r 5 39r 6 1
30r 6 85r 1 28r 3 1 6 4 35r 6 1 5r 3 17r 1 4r 6 5 37r 6 1 31r 6
85r 1 31r 6 4 33r 6 1r 1 5r 3 17r 1 4r 6 5 35r 6 1r 1 2r 3 1
28r 6 86r 1 31r 6 4 32r 6 1 6r 3 17r 1 5r 6 5 33r 6 1r 1 1r 3
1r 1 28r 6 87r 1 31r 6 1r 4 30r 6 1r 1 5r 3 18r 1 1r 3 1 3r 5
32r 6 1r 1 1r 3 1r 1 29r 6 87r 1 32r 6 1r 4 29r 6 1 6r 3 18r 1

3 1r 1 3r 6 5 30r 6 1r 1 3 3r 1 28r 6 89r 1 32r 6 1r 4 27r 6
1r 1 6r 3 21r 1 4r 5 29r 6 1r 1 3 3r 1 29r 6 89r 1 33r 6 1r 4
25r 6 1r 1 6r 3 23r 1 3r 6 5 27r 6 1r 1 3 3r 1 29r 6 91r 1 34r 6
1r 4 22r 6 1r 1 7r 3 19r 1 1r 3 1r 1 4r 6 5 25r 6 1r 1 3 2r 1
31r 6 92r 1 34r 6 1r 4 21r 6 1 7r 3 20r 1 1r 3 2r 1 4r 6 5 22r 6
1r 1 2r 3 1r 1 31r 6 94r 1 34r 6 2r 4 17r 6 1r 1 7r 3 21r 1
2r 3 1r 1 5r 6 1r 5 18r 6 1r 1 3r 3 1r 1 31r 6 95r 1 36r 6 1r 4
15r 6 1r 1 8r 3 21r 1 3r 3 1r 1 6r 6 4r 5 10r 6 2r 1 38r 6 97r 1
30r 3 2r 1 3r 6 1r 4 11r 6 2r 1 4r 3 1r 1 1r 3 22r 1 3r 3 3r 1
7r 6 12r 1 40r 6 99r 1 29r 3 4r 1 2r 6 13r 1 5r 3 3r 1 3 23r 1
3r 3 3r 1 59r 6 101r 1 29r 3 6r 1 2r 6 8r 1 6r 3 3r 1 2r 3 22r 1
4r 3 3r 1 57r 6 104r 1 29r 3 6r 1 14r 3 4r 1 4r 3 21r 1 4r 3
5r 1 53r 6 108r 1 28r 3 7r 1 11r 3 3r 1 7r 3 20r 1 5r 3 5r 1
50r 6 112r 1 28r 3 5r 1 11r 3 1r 1 9r 3 18r 1 8r 3 5r 1 47r 6
116r 1 135r 6 122r 1 130r 6 127r 1 124r 6 134r 1 117r 6 140r 1
111r 6 147r 1 50r 6 7r 1 43r 6 157r 1 41r 6 18r 1 32r 6 170r 1
13r 6 50r 1 12r 6 32442r 2 20r 6 230r 2 31r 6 221r 2 39r 6 14r 2
3r 6 193r 2 72r 6 180r 2 79r 6 173r 2 84r 6 168r 2 88r 6 165r 2
47r 3 3r 2 39r 6 161r 2 18r 6 17r 2 8r 3 8r 2 40r 6 158r 2 14r 6
2r 4 20r 6 4r 2 18r 6 1r 2 33r 6 155r 2 11r 6 2r 4 27r 6 34r 2
23r 6 152r 2 9r 6 2r 4 30r 6 2r 1 13r 6 24r 2 17r 6 150r 2 8r 6
1r 4 33r 6 1r 1 15r 6 27r 2 15r 6 147r 2 7r 6 4 36r 6 1r 1 28r 6
18r 2 12r 6 145r 2 6r 6 1r 4 37r 6 1 33r 6 2r 1 7r 6 5r 2 12r 6
142r 2 6r 6 1r 4 39r 1 46r 6 5r 2 11r 6 140r 2 6r 6 4 41r 1
48r 6 4r 2 11r 6 138r 2 6r 6 4 41r 1 50r 6 5r 2 10r 6 136r 2
6r 6 4 42r 1 51r 6 5r 2 10r 6 135r 2 5r 6 4 42r 1 54r 6 5r 2
9r 6 133r 2 6r 6 4 41r 6 1 55r 6 5r 2 8r 6 132r 2 6r 6 4 41r 6
1r 1 55r 6 6r 2 8r 6 130r 2 6r 6 4 42r 6 1 57r 6 6r 2 8r 6 129r 2
5r 6 4 42r 6 1 59r 6 6r 2 8r 6 127r 2 6r 6 4 41r 6 1 60r 6 7r 2
7r 6 126r 2 6r 6 4 41r 6 1r 1 61r 6 7r 2 7r 6 125r 2 5r 6 1r 4
41r 6 1 62r 6 7r 2 8r 6 123r 2 6r 6 4 41r 6 1 64r 6 7r 2 7r 6
123r 2 5r 6 1r 4 41r 1 65r 6 8r 2 7r 6 121r 2 6r 6 4 41r 6 1
66r 6 8r 2 7r 6 119r 2 6r 6 4 41r 6 1 67r 6 8r 2 7r 6 119r 2
5r 6 1r 4 41r 6 1 67r 6 9r 2 7r 6 117r 2 6r 6 4 41r 6 1 68r 6
9r 2 7r 6 117r 2 5r 6 1r 4 40r 6 1 69r 6 10r 2 7r 6 115r 2 6r 6
4 41r 6 1 69r 6 10r 2 7r 6 115r 2 5r 6 1r 4 40r 6 1 70r 6 10r 2
7r 6 114r 2 5r 6 1r 4 41r 6 1 70r 6 11r 2 7r 6 113r 2 5r 6 1r 4
41r 1 71r 6 5r 5 3r 6 1r 2 7r 6 112r 2 5r 6 2r 4 41r 1 71r 6
3r 5 6r 6 2 8r 6 111r 2 5r 6 1r 4 42r 6 1 70r 6 2r 5 8r 6 2
7r 6 110r 2 6r 6 1r 4 43r 1 70r 6 1r 5 9r 6 2 7r 6 110r 2 5r 6
1r 4 44r 1 70r 6 5 10r 6 2 1r 3 2 5r 6 108r 2 6r 6 1r 4 44r 6
1 68r 6 5 12r 6 2 3 2 5r 6 108r 2 6r 6 1r 4 45r 1 68r 5 13r 6
2 3 2 5r 6 110r 2 4r 6 4 46r 1 67r 6 5 13r 6 2 3 2 6r 6 107r 1
6 3r 2 6 2r 4 45r 6 1 66r 5 15r 2 3 1r 2 5r 6 107r 1 4r 6 2r 4
47r 1 65r 5 16r 2 3 1r 2 5r 6 106r 1 7r 6 4 47r 6 1 63r 6 5
16r 6 3 1r 2 6r 6 105r 1 7r 6 4 47r 6 1 62r 6 5 17r 6 3 1r 2
6r 6 105r 1 7r 6 4 47r 6 1 61r 6 5 18r 6 3 1r 2 5r 6 105r 1
8r 6 4 48r 6 1 59r 6 5 19r 6 2 3 2 2r 6 2r 1 6 104r 1 8r 6 4
48r 6 1 58r 6 5 21r 6 2 6 2r 1 4r 6 102r 1 9r 6 4 48r 6 1 57r 6
5 22r 6 1r 1 7r 6 102r 1 9r 6 4 49r 1 56r 6 5 23r 6 1 9r 6 101r 1
8r 6 1r 4 49r 6 1 54r 6 1r 5 23r 6 1 9r 6 100r 1 9r 6 1r 4 50r 1
53r 6 1r 5 24r 6 1 9r 6 100r 1 9r 6 4 51r 6 1 51r 6 1r 5 25r 6
1 9r 6 100r 1 9r 6 4 52r 6 1 48r 6 2r 5 26r 6 1 9r 6 99r 1 10r 6
4 53r 1 47r 6 2r 5 27r 6 1 10r 6 98r 1 10r 6 4 53r 6 1 45r 6

2r 5 28r 6 1 10r 6 97r 1 11r 6 4 54r 6 1 42r 6 3r 5 29r 6 1
10r 6 97r 1 11r 6 4 56r 1 40r 6 4r 5 29r 6 1 10r 6 97r 1 7r 3
1r 1 6 1r 4 57r 1 39r 6 3r 5 30r 6 1 11r 6 95r 1 8r 3 1r 1 6
1r 4 57r 6 1 37r 6 4r 5 30r 1 12r 6 95r 1 8r 3 1r 1 6 1r 4 58r 6
1 35r 6 3r 5 31r 6 1 12r 6 95r 1 8r 3 1r 1 6 4 60r 1 35r 6 3r 5
31r 6 1 12r 6 94r 1 9r 3 2r 6 4 60r 6 1 33r 6 3r 5 32r 6 1 12r 6
94r 1 10r 3 1r 6 4 60r 6 1 32r 6 3r 5 33r 6 1 13r 6 92r 1 11r 3
1r 1 4 60r 6 1 32r 6 2r 5 34r 6 1 13r 6 92r 1 11r 3 1r 1 4 59r 6
1 32r 6 1r 5 36r 1 14r 6 92r 1 11r 3 1r 1 4 58r 6 1 31r 6 1r 5
37r 6 1 14r 6 91r 1 12r 3 1r 1 6 4 57r 6 1 30r 6 5 39r 6 1 14r 6
91r 1 12r 3 1r 1 6 4 56r 6 1 27r 6 2r 5 41r 6 1 15r 6 90r 1
12r 3 1r 1 6 4 56r 6 1 22r 6 2r 5 6 5 44r 6 1 15r 6 89r 1 14r 3
1r 6 4 55r 6 1 23r 6 1r 5 47r 1 16r 6 89r 1 14r 3 1r 6 4 55r 6
1 23r 5 48r 6 1 16r 6 89r 1 14r 3 1 6 4 54r 6 1 23r 6 5 48r 6
1 16r 6 89r 1 16r 6 4 53r 6 1r 1 22r 6 5 49r 6 1 16r 6 88r 1
18r 4 53r 6 1 22r 6 5 50r 1 17r 6 88r 1 18r 4 52r 6 1 23r 5
50r 6 1 17r 6 88r 1 18r 4 52r 6 1 22r 6 5 50r 6 1 17r 6 87r 1
19r 4 52r 6 1 21r 6 5 51r 1 18r 6 87r 1 19r 6 4 50r 6 1 22r 5
51r 6 1 19r 6 86r 1 19r 6 4 50r 6 1 19r 6 1r 5 52r 6 1 19r 6
85r 1 21r 4 49r 6 1 20r 6 1r 5 51r 6 1r 1 19r 6 85r 1 21r 4
49r 6 1 21r 5 52r 6 1 20r 6 85r 1 21r 6 4 48r 6 1 21r 5 51r 6
1 1r 3 1 18r 6 85r 1 21r 6 4 48r 6 1 21r 6 5 50r 6 1 3 1r 1
18r 6 84r 1 23r 4 48r 1 22r 6 5 49r 6 1 3 2r 1 18r 6 84r 1 23r 4
47r 6 1 23r 5 49r 6 1 3 2r 1 18r 6 84r 1 23r 6 4 46r 6 1 9r 3
1 12r 5 48r 6 1 3 2r 1 20r 6 83r 1 24r 4 46r 6 1 6r 3 5r 1 10r 5
48r 6 1 3 2r 1 20r 6 83r 1 24r 6 4 45r 6 1 5r 3 8r 1 8r 5 48r 6
1 3 1r 1 21r 6 83r 1 25r 4 45r 6 1 4r 3 10r 1 7r 5 47r 6 1 3
1r 1 22r 6 83r 1 25r 6 4 44r 6 1 4r 3 11r 1 6r 6 5 46r 6 1 3
1 23r 6 83r 1 21r 3 1r 1 2r 4 44r 6 1 3r 3 13r 1 5r 6 5 45r 6
1 26r 6 83r 1 21r 3 3r 1 6 4 43r 6 1 3r 3 13r 1 5r 6 5 45r 6
1 26r 6 83r 1 22r 3 3r 1 4 42r 6 1 4r 3 14r 1 4r 6 5 44r 6 1
27r 6 83r 1 22r 3 3r 1 6 4 41r 6 1 3r 3 15r 1 4r 6 5 44r 6 1
27r 6 83r 1 23r 3 3r 1 6 4 40r 6 1 3r 3 15r 1 5r 5 43r 6 1 28r 6
83r 1 23r 3 4r 1 4 40r 6 1 3r 3 15r 1 5r 5 42r 6 1r 1 28r 6
83r 1 24r 3 3r 1 6 4 38r 6 1 4r 3 16r 1 4r 5 42r 6 1 29r 6 83r 1
25r 3 3r 1 6 4 37r 6 1 3r 3 17r 1 4r 5 41r 6 1 30r 6 83r 1 26r 3
3r 6 4 37r 6 1 3r 3 17r 1 4r 6 5 39r 6 1r 1 29r 6 84r 1 27r 3
2r 1 6 4 35r 6 1 6r 3 15r 1 5r 5 38r 6 1r 1 30r 6 85r 1 27r 3
2r 1 4 34r 6 1r 1 6r 3 16r 1 4r 6 5 36r 6 1r 1 31r 6 85r 1 28r 3
1r 1 6 4 33r 6 1 2r 3 1r 1 2r 3 16r 1 4r 6 5 35r 6 1r 1 32r 6
85r 1 32r 6 4 32r 6 1 2r 3 2r 1 1r 3 15r 1 6r 6 5 33r 6 1r 1
32r 6 87r 1 31r 6 1r 4 30r 6 1r 1 2r 3 19r 1 3r 3 1r 1 1r 6
5 32r 6 1r 1 1r 3 1r 1 29r 6 87r 1 32r 6 1r 4 29r 6 1 3r 3 19r 1
1r 3 3r 1 2r 6 5 30r 6 1r 1 1r 3 1r 1 30r 6 88r 1 32r 6 1r 4
27r 6 1 3r 3 20r 1 1r 3 3r 1 2r 6 5 29r 6 1r 1 3 3r 1 29r 6
89r 1 33r 6 1r 4 25r 6 1r 1 3r 3 21r 1 3 3r 1 3r 6 5 27r 6 1r 1
3 2r 1 30r 6 91r 1 34r 6 1r 4 22r 6 1r 1 3r 3 22r 1 1r 3 3r 1
3r 6 5 24r 6 1r 1 1r 3 3r 1 30r 6 92r 1 34r 6 1r 4 20r 6 1r 1
4r 3 22r 1 1r 3 3r 1 4r 6 5 22r 6 1r 1 1r 3 2r 1 31r 6 93r 1
35r 6 2r 4 17r 6 1r 1 4r 3 23r 1 2r 3 3r 1 4r 6 1r 5 18r 6 1r 1
2r 3 2r 1 31r 6 95r 1 36r 6 2r 4 14r 6 1r 1 4r 3 24r 1 3r 3
2r 1 6r 6 4r 5 10r 6 2r 1 3r 3 2r 1 31r 6 97r 1 37r 6 1r 4 8r 6
5r 1 4r 3 26r 1 2r 3 3r 1 9r 6 11r 1 5r 3 1r 1 32r 6 99r 1 37r 6
13r 1 5r 3 27r 1 3r 3 3r 1 60r 6 101r 1 30r 3 3r 1 4r 6 7r 1

7r 3 4r 1 1r 3 21r 1 4r 3 3r 1 58r 6 104r 1 29r 3 7r 1 14r 3
3r 1 4r 3 21r 1 4r 3 4r 1 54r 6 108r 1 28r 3 8r 1 21r 3 20r 1
5r 3 5r 1 51r 6 112r 1 28r 3 6r 1 22r 3 18r 1 62r 6 116r 1 135r 6
122r 1 130r 6 127r 1 124r 6 134r 1 117r 6 140r 1 111r 6 147r 1
49r 6 9r 1 42r 6 157r 1 40r 6 20r 1 30r 6 171r 1 11r 6 55r 1
2r 6 1r 1 1r 6 32446r 2 19r 6 231r 2 29r 6 222r 2 38r 6 214r 2
70r 6 181r 2 78r 6 174r 2 83r 6 170r 2 87r 6 165r 2 46r 3 4r 2
39r 6 162r 2 17r 6 15r 2 11r 3 7r 2 40r 6 158r 2 14r 6 8r 4
7r 6 9r 2 56r 6 155r 2 12r 6 4r 4 22r 6 30r 2 28r 6 153r 2 10r 6
2r 4 28r 6 5r 1 25r 6 8r 2 19r 6 150r 2 8r 6 2r 4 31r 6 4r 1
34r 6 6r 2 15r 6 147r 2 7r 6 2r 4 34r 6 2r 1 40r 6 4r 2 13r 6
145r 2 7r 6 1r 4 36r 6 2r 1 43r 6 4r 2 11r 6 143r 2 6r 6 1r 4
39r 6 1 45r 6 4r 2 12r 6 140r 2 6r 6 1r 4 40r 1 48r 6 4r 2 11r 6
138r 2 6r 6 1r 4 40r 6 1 49r 6 4r 2 11r 6 137r 2 5r 6 4 42r 1
52r 6 4r 2 10r 6 135r 2 6r 6 4 41r 6 1 53r 6 4r 2 9r 6 134r 2
6r 6 4 41r 6 1r 1 55r 6 4r 2 8r 6 132r 2 6r 6 4 41r 6 1r 1 56r 6
5r 2 8r 6 131r 2 5r 6 1r 4 41r 6 1 58r 6 5r 2 8r 6 129r 2 6r 6
4 41r 6 1r 1 58r 6 6r 2 8r 6 127r 2 6r 6 4 41r 6 1r 1 59r 6
6r 2 8r 6 126r 2 6r 6 4 41r 6 1r 1 61r 6 6r 2 8r 6 125r 2 6r 6
4 40r 6 1r 1 62r 6 7r 2 8r 6 123r 2 6r 6 4 41r 6 1 64r 6 7r 2
7r 6 123r 2 5r 6 4 41r 6 1 65r 6 8r 2 7r 6 121r 2 6r 6 4 40r 6
1r 1 65r 6 8r 2 7r 6 120r 2 6r 6 4 41r 6 1 67r 6 8r 2 7r 6 119r 2
5r 6 4 41r 6 1 68r 6 9r 2 6r 6 118r 2 6r 6 4 41r 1 70r 6 8r 2
7r 6 117r 2 5r 6 4 41r 6 1 70r 6 8r 2 7r 6 116r 2 6r 6 4 41r 1
71r 6 9r 2 7r 6 115r 2 5r 6 1r 4 40r 6 1 71r 6 9r 2 7r 6 114r 2
6r 6 4 41r 1 72r 6 9r 2 8r 6 113r 2 5r 6 1r 4 41r 1 71r 6 5r 5
2r 6 2r 2 7r 6 112r 2 6r 6 1r 4 41r 6 1 70r 6 3r 5 5r 6 1r 2
8r 6 111r 2 5r 6 1r 4 42r 6 1 70r 6 2r 5 8r 6 2 7r 6 110r 2
6r 6 1r 4 42r 6 1 70r 6 1r 5 9r 6 2 7r 6 110r 2 6r 6 4 43r 6
1r 1 69r 6 5 10r 6 2 8r 6 108r 2 6r 6 1r 4 44r 6 1 69r 5 12r 6
2 7r 6 108r 2 6r 6 1r 4 44r 6 1 68r 5 13r 6 2 7r 6 110r 2 3r 6
1r 4 46r 1 68r 5 13r 6 2 3 2 6r 6 112r 2 6 1r 4 46r 6 1 66r 5
14r 6 2 3 2 6r 6 107r 1 5r 6 1r 4 46r 6 1 66r 5 15r 2 3 1r 2
6r 6 105r 1 7r 6 4 46r 6 1 65r 5 16r 6 3 1r 2 6r 6 105r 1 7r 6
4 47r 6 1 63r 5 17r 6 3 1r 2 6r 6 105r 1 7r 6 4 47r 6 1 62r 6
5 17r 6 3 1r 2 4r 6 106r 1 8r 6 4 47r 6 1 62r 5 18r 6 2 3 2
1r 6 4r 1 6 103r 1 8r 6 4 47r 6 1r 1 60r 5 20r 2 6 4r 1 3r 6
103r 1 8r 6 4 48r 6 1 59r 6 5 20r 6 1r 3 1 6r 6 102r 1 9r 6
4 48r 6 1 59r 5 21r 6 3 1r 1 7r 6 101r 1 9r 6 4 49r 6 1 57r 5
22r 6 3 1r 1 7r 6 100r 1 10r 4 50r 6 1 56r 5 23r 6 1 3 1 7r 6
100r 1 9r 6 4 51r 6 1 54r 5 24r 6 1 9r 6 100r 1 9r 6 4 51r 6
1r 1 52r 5 25r 6 1 9r 6 99r 1 10r 6 4 52r 6 1 51r 6 5 25r 6
1 10r 6 98r 1 10r 6 4 53r 6 1 50r 5 26r 6 1 10r 6 97r 1 11r 6
4 54r 6 1 48r 5 27r 6 1 10r 6 97r 1 11r 6 4 55r 6 1 46r 5 28r 6
1 10r 6 97r 1 11r 4 57r 6 1 44r 5 29r 1 12r 6 95r 1 12r 4 58r 6
1 42r 6 5 28r 6 1 12r 6 95r 1 11r 6 4 59r 6 1 40r 6 5 29r 6
1 12r 6 95r 1 9r 3 1 6 4 59r 6 1 39r 5 31r 6 1 12r 6 94r 1 10r 3
1 6 4 59r 6 1r 1 37r 6 5 31r 6 1 12r 6 94r 1 10r 3 1 1r 4 59r 6
1r 1 36r 6 5 32r 6 1 13r 6 92r 1 11r 3 1r 1 4 58r 6 2r 1 34r 6
5 34r 6 1 13r 6 92r 1 11r 3 1r 1 6 4 57r 6 1r 1 33r 6 5 36r 1
14r 6 92r 1 11r 3 1r 1 6 4 57r 6 1 33r 6 5 36r 6 1 14r 6 91r 1
12r 3 1r 1 6 4 56r 6 1r 1 29r 6 2r 5 38r 6 1 14r 6 91r 1 12r 3
1r 1 6 4 56r 6 1 23r 6 1 2r 6 2r 5 41r 6 1 15r 6 90r 1 12r 3
2r 6 4 55r 6 1r 1 23r 6 2r 5 45r 1 16r 6 89r 1 13r 3 2r 6 4

55r 6 1 23r 6 1r 5 46r 6 1 16r 6 89r 1 14r 3 1r 6 4 54r 6 1r 1
23r 6 5 47r 6 1 16r 6 89r 1 14r 3 1r 1 4 54r 6 1 23r 6 5 48r 6
1 16r 6 89r 1 14r 3 1r 1 6 4 52r 6 1r 1 22r 6 5 49r 6 1 16r 6
88r 1 15r 3 1r 1 6 4 51r 6 1r 1 22r 6 5 49r 6 1 17r 6 88r 1
16r 3 1 6 4 51r 6 1 23r 5 50r 6 1 17r 6 88r 1 18r 6 4 51r 6
1 22r 5 51r 6 1 17r 6 87r 1 19r 6 4 50r 6 1r 1 21r 6 5 50r 6
1 18r 6 87r 1 20r 4 49r 6 1r 1 21r 6 5 51r 6 1 19r 6 86r 1 20r 6
4 48r 6 1r 1 20r 5 53r 6 1 19r 6 85r 1 21r 6 4 48r 6 1 20r 6
5 52r 6 1 20r 6 85r 1 21r 6 4 48r 6 1 21r 5 52r 6 1 20r 6 85r 1
21r 6 4 47r 6 1r 1 21r 5 51r 6 1 21r 6 85r 1 22r 6 4 46r 6 1r 1
21r 6 5 50r 6 1 21r 6 84r 1 23r 6 4 46r 6 1r 1 21r 6 5 49r 6
1 3 2r 1 18r 6 84r 1 23r 6 4 46r 6 1 22r 6 5 49r 6 1 3 2r 1
18r 6 84r 1 24r 6 4 45r 6 1 8r 3 2r 1 11r 5 48r 6 1 3 2r 1 20r 6
83r 1 24r 6 4 45r 6 1 6r 3 6r 1 9r 5 48r 6 1 3 2r 1 20r 6 83r 1
24r 6 1r 4 44r 6 1 5r 3 8r 1 8r 5 47r 6 1 3 2r 1 21r 6 83r 1
25r 6 4 44r 6 1 4r 3 10r 1 7r 5 47r 6 1 3 2r 1 21r 6 83r 1 25r 6
1r 4 42r 6 1r 1 4r 3 11r 1 6r 6 5 45r 6 1r 3 2r 1 22r 6 83r 1
26r 6 4 42r 6 1r 1 3r 3 13r 1 5r 6 5 45r 6 1 3 1r 1 23r 6 82r 1
27r 6 1r 4 41r 6 1r 1 3r 3 13r 1 5r 6 5 45r 6 1 26r 6 83r 1
27r 6 4 41r 6 1 4r 3 13r 1 5r 6 5 44r 6 1 27r 6 83r 1 23r 3
1r 1 1r 6 1r 4 40r 6 1 3r 3 15r 1 4r 6 5 43r 6 1r 1 27r 6 83r 1
23r 3 2r 1 1r 6 4 39r 6 1r 1 3r 3 15r 1 4r 6 5 43r 6 1 28r 6
83r 1 23r 3 3r 1 1r 6 4 38r 6 1r 1 3r 3 15r 1 4r 6 5 42r 6 1r 1
28r 6 83r 1 24r 3 3r 1 6 1r 4 37r 6 1 4r 3 16r 1 4r 5 42r 6
1 29r 6 83r 1 24r 3 4r 1 6 4 37r 6 1 3r 3 17r 1 4r 5 41r 6 1
30r 6 83r 1 25r 3 4r 1 6 4 35r 6 1r 1 3r 3 17r 1 4r 6 5 39r 6
1 31r 6 83r 1 26r 3 3r 1 6 4 35r 6 1r 1 5r 3 15r 1 4r 6 5 38r 6
1r 1 30r 6 85r 1 26r 3 3r 1 6 4 33r 6 1r 1 2r 3 1 2r 3 16r 1
4r 6 5 36r 6 1r 1 31r 6 85r 1 27r 3 2r 1 6 1r 4 31r 6 2r 1 1r 3
2r 1 1r 3 15r 1 5r 6 5 35r 6 1r 1 32r 6 85r 1 28r 3 2r 1 6 1r 4
30r 6 1r 1 2r 3 2r 1 1r 3 15r 1 6r 6 5 33r 6 1r 1 32r 6 87r 1
29r 3 1r 1 6 1r 4 28r 6 2r 1 2r 3 3r 1 1r 3 13r 1 2r 3 2r 1
1r 6 5 32r 6 1r 1 33r 6 87r 1 30r 3 1 1r 6 1r 4 26r 6 2r 1 2r 3
3r 1 1r 3 14r 1 1r 3 3r 1 2r 6 5 30r 6 1r 1 1r 3 1 31r 6 88r 1
33r 6 1r 4 24r 6 2r 1 3r 3 2r 1 1r 3 15r 1 1r 3 3r 1 2r 6 5
29r 6 1r 1 2r 3 1 30r 6 89r 1 33r 6 2r 4 21r 6 4r 1 2r 3 2r 1
2r 3 15r 1 1r 3 3r 1 3r 6 5 27r 6 1 1r 3 2r 1 30r 6 91r 1 34r 6
1r 4 19r 6 4r 1 3r 3 2r 1 1r 3 17r 1 1r 3 3r 1 3r 6 5 25r 6
1 1r 3 3r 1 30r 6 91r 1 35r 6 2r 4 16r 6 4r 1 3r 3 3r 1 3 18r 1
1r 3 3r 1 4r 6 5 22r 6 1r 1 3 3r 1 31r 6 93r 1 35r 6 3r 4 13r 6
4r 1 4r 3 2r 1 3 19r 1 2r 3 2r 1 5r 6 1r 5 18r 6 1r 1 1r 3 3r 1
31r 6 95r 1 36r 6 3r 4 9r 6 5r 1 4r 3 3r 1 3 20r 1 2r 3 2r 1
6r 6 4r 5 10r 6 3r 1 2r 3 2r 1 31r 6 97r 1 37r 6 15r 1 5r 3
26r 1 2r 3 3r 1 10r 6 11r 1 4r 3 2r 1 31r 6 99r 1 38r 6 11r 1
7r 3 26r 1 3r 3 3r 1 24r 3 2r 1 32r 6 101r 1 40r 6 6r 1 8r 3
2r 1 1r 3 22r 1 4r 3 2r 1 59r 6 104r 1 31r 3 1r 1 26r 3 22r 1
4r 3 2r 1 56r 6 108r 1 29r 3 8r 1 20r 3 20r 1 63r 6 112r 1 28r 3
8r 1 21r 3 16r 1 63r 6 116r 1 28r 3 5r 1 100r 6 121r 1 130r 6
128r 1 124r 6 133r 1 118r 6 139r 1 112r 6 146r 1 49r 6 11r 1
41r 6 157r 1 39r 6 23r 1 27r 6 172r 1 10r 6 32511r 2 17r 6 233r 2
27r 6 224r 2 36r 6 215r 2 69r 6 183r 2 76r 6 176r 2 82r 6 170r 2
87r 6 166r 2 45r 3 4r 2 39r 6 162r 2 20r 6 11r 2 12r 3 7r 2
40r 6 159r 2 13r 6 4r 4 15r 6 4r 2 8r 3 3r 2 43r 6 156r 2 12r 6
1r 4 25r 6 30r 2 28r 6 153r 2 10r 6 1r 4 29r 6 39r 2 20r 6 150r 2
8r 6 1r 4 33r 6 7r 1 23r 6 12r 2 16r 6 147r 2 8r 6 4 37r 6 1r 1
39r 6 3r 2 14r 6 145r 2 7r 6 4 40r 6 1 43r 6 2r 2 12r 6 143r 2
7r 6 4 40r 6 1 46r 6 2r 2 11r 6 141r 2 7r 4 42r 1 49r 6 2r 2
10r 6 140r 2 6r 4 42r 6 1 51r 6 1r 2 10r 6 138r 2 6r 6 4 42r 1
53r 6 1r 2 10r 6 136r 2 6r 6 4 42r 1 55r 6 2r 2 9r 6 134r 2
6r 6 4 42r 6 1 56r 6 2r 2 9r 6 132r 2 6r 6 4 42r 6 1 58r 6 2r 2
9r 6 131r 2 6r 4 43r 6 1 59r 6 2r 2 9r 6 129r 2 6r 6 4 42r 6
1 61r 6 2r 2 8r 6 128r 2 6r 6 4 42r 6 1 63r 6 2r 2 8r 6 127r 2
5r 6 4 41r 6 1r 1 64r 6 3r 2 8r 6 125r 2 6r 4 41r 6 1r 1 66r 6
3r 2 7r 6 124r 2 6r 6 4 40r 6 1r 1 68r 6 3r 2 7r 6 123r 2 5r 6
1r 4 40r 6 1 69r 6 3r 2 8r 6 121r 2 6r 6 4 40r 6 1 70r 6 4r 2
7r 6 121r 2 5r 6 4 41r 6 1 70r 6 5r 2 7r 6 119r 2 6r 6 4 40r 6
1 70r 6 6r 2 7r 6 118r 2 6r 6 4 41r 1 71r 6 7r 2 7r 6 117r 2
6r 6 4 40r 6 1 71r 6 7r 2 7r 6 116r 2 6r 6 1r 4 39r 6 1r 1 71r 6
8r 2 7r 6 115r 2 6r 6 4 40r 6 1 71r 6 9r 2 7r 6 114r 2 6r 6
1r 4 39r 6 1r 1 71r 6 9r 2 8r 6 113r 2 6r 6 1r 4 39r 6 1r 1
71r 6 4r 5 3r 6 1r 2 7r 6 112r 2 6r 6 1r 4 41r 6 1 71r 6 2r 5
5r 6 1r 2 8r 6 111r 2 6r 6 1r 4 41r 6 1r 1 69r 6 2r 5 7r 6 1r 2
7r 6 110r 2 6r 6 2r 4 41r 6 1r 1 69r 6 1r 5 9r 6 2 7r 6 110r 2
6r 6 1r 4 42r 6 1r 1 69r 6 5 10r 6 2 8r 6 108r 2 7r 6 1r 4 43r 6
1 68r 6 1r 5 11r 6 2 7r 6 107r 2 7r 6 2r 4 43r 6 1 68r 6 5 12r 6
2 7r 6 110r 2 4r 6 1r 4 45r 1 68r 5 13r 6 2 8r 6 111r 2 2r 6
1r 4 45r 6 1 66r 5 14r 6 2 8r 6 107r 1 5r 6 2r 4 45r 6 1 66r 5
15r 2 9r 6 106r 1 6r 6 1r 4 46r 1 65r 5 16r 6 2 8r 6 105r 1
7r 6 1r 4 46r 1 65r 5 16r 6 2 8r 6 105r 1 8r 6 4 46r 6 1 63r 5
17r 6 2 7r 6 105r 1 8r 6 1r 4 46r 6 1 62r 5 18r 6 2 3 2 2r 1
4r 6 103r 1 8r 6 1r 4 47r 1 62r 5 19r 2 1 8r 6 103r 1 8r 6 1r 4
47r 6 1 60r 5 20r 6 3 1r 1 7r 6 101r 1 9r 6 4 48r 6 1r 1 58r 5
21r 6 3 1r 1 7r 6 101r 1 9r 6 4 49r 6 1 57r 5 22r 6 3 1r 1 7r 6
100r 1 10r 6 4 49r 6 1r 1 55r 5 23r 6 3 1r 1 7r 6 100r 1 10r 6
4 50r 6 1r 1 53r 5 24r 6 3 1r 1 7r 6 100r 1 10r 6 4 51r 6 1
52r 5 25r 6 3 1r 1 7r 6 99r 1 10r 6 1r 4 51r 6 1r 1 50r 5 26r 6
3 1r 1 8r 6 98r 1 10r 6 4 53r 6 1r 1 49r 5 26r 6 1 10r 6 97r 1
11r 6 4 54r 6 1r 1 47r 5 27r 6 1 10r 6 97r 1 11r 6 4 55r 6 1r 1
44r 6 1r 5 27r 6 1 10r 6 97r 1 11r 6 4 56r 6 1r 1 42r 6 5 29r 6
1 11r 6 95r 1 12r 6 4 56r 6 1r 1 41r 6 1r 5 28r 6 1 12r 6 95r 1
12r 4 58r 6 1r 1 39r 6 1r 5 29r 6 1 12r 6 95r 1 12r 4 58r 6
1r 1 38r 6 5 31r 6 1 12r 6 94r 1 13r 4 58r 6 1r 1 37r 6 1r 5
31r 6 1 12r 6 94r 1 13r 6 4 57r 6 1 37r 6 5 33r 6 1 13r 6 93r 1
13r 6 4 58r 1 34r 6 1 6 5 34r 6 1 13r 6 92r 1 11r 3 1 1r 6 4
58r 1 34r 6 5 36r 1 14r 6 92r 1 11r 3 1 1r 6 4 57r 6 1 33r 5
37r 6 1 14r 6 91r 1 12r 3 1r 1 4 58r 1 23r 5 1 5r 6 1r 5 39r 6
1 14r 6 91r 1 12r 3 1r 1 4 58r 1 23r 5 6 1 1r 6 2r 5 41r 6 1
15r 6 90r 1 12r 3 1r 1 4 57r 1 24r 6 5 47r 1 16r 6 89r 1 13r 3
2r 6 4 55r 6 1 24r 6 5 46r 6 1 16r 6 89r 1 13r 3 2r 1 4 55r 1
24r 6 5 47r 6 1 16r 6 89r 1 13r 3 2r 1 4 54r 6 1r 1 22r 6 5
48r 6 1 16r 6 89r 1 14r 3 1r 1 4 54r 6 1 22r 6 5 49r 1 17r 6
88r 1 15r 3 1r 1 4 53r 6 1 22r 6 5 49r 6 1 17r 6 88r 1 15r 3
2r 6 4 51r 6 1r 1 21r 6 5 50r 6 1 17r 6 88r 1 16r 3 1r 6 4 51r 6
1 21r 6 5 51r 6 1 17r 6 87r 1 17r 3 1r 1 4 51r 6 1 21r 5 51r 6
1 18r 6 87r 1 17r 3 1r 1 4 50r 6 1 21r 6 5 51r 6 1 19r 6 86r 1
18r 3 1 4 50r 6 1 21r 5 52r 6 1 19r 6 85r 1 21r 6 4 48r 6 1
20r 6 5 52r 6 1 20r 6 85r 1 22r 4 48r 6 1 20r 6 5 52r 6 1 20r 6
85r 1 22r 4 48r 6 1 21r 5 51r 6 1 21r 6 85r 1 22r 4 48r 6 1
21r 6 5 50r 6 1 21r 6 84r 1 23r 6 4 47r 6 1 21r 6 5 49r 6 1
22r 6 84r 1 24r 4 47r 1 22r 6 5 49r 6 1 3 1r 1 20r 6 83r 1 24r 4
46r 6 1 7r 3 3r 1 10r 6 5 48r 6 1 3 2r 1 20r 6 83r 1 24r 6 4
45r 6 1 5r 3 7r 1 9r 5 48r 6 1 3 2r 1 20r 6 83r 1 25r 4 45r 6
1 4r 3 9r 1 8r 5 47r 6 1 3 2r 1 21r 6 83r 1 25r 6 4 44r 6 1
4r 3 10r 1 7r 5 47r 6 1 3 2r 1 21r 6 82r 1 27r 4 44r 6 1 3r 3
12r 1 6r 5 46r 6 1 3 2r 1 22r 6 82r 1 27r 6 4 43r 6 1 3r 3 13r 1
5r 6 5 45r 6 1 3 2r 1 22r 6 82r 1 27r 6 4 43r 6 1 3r 3 13r 1
5r 6 5 44r 6 1r 1 3 1r 1 23r 6 82r 1 28r 6 4 41r 6 1 3r 3 15r 1
4r 6 5 44r 6 1 1r 3 1 24r 6 82r 1 28r 6 4 41r 6 1 3r 3 15r 1
4r 6 5 43r 6 1r 1 27r 6 83r 1 28r 6 4 40r 6 1 3r 3 15r 1 4r 6
5 43r 6 1 28r 6 83r 1 29r 4 40r 6 1 3r 3 15r 1 4r 6 5 42r 6
1 29r 6 83r 1 29r 6 4 38r 6 1r 1 3r 3 16r 1 4r 5 41r 6 1r 1
29r 6 83r 1 25r 3 2r 1 1r 6 4 37r 6 1 3r 3 17r 1 4r 5 41r 6
1 30r 6 83r 1 25r 3 3r 1 1r 6 4 36r 6 1 3r 3 17r 1 4r 6 5 39r 6
1 31r 6 83r 1 26r 3 3r 1 6 4 35r 6 1r 1 4r 3 17r 1 3r 6 5 38r 6
1 31r 6 85r 1 25r 3 4r 1 6 4 34r 6 1 2r 3 1 2r 3 16r 1 4r 6
5 36r 6 1r 1 31r 6 85r 1 26r 3 4r 1 6 4 32r 6 1r 1 2r 3 1r 1
1r 3 15r 1 5r 6 5 35r 6 1r 1 32r 6 85r 1 27r 3 3r 1 6 1r 4 31r 6
1 2r 3 2r 1 2r 3 14r 1 6r 6 5 33r 6 1r 1 33r 6 85r 1 28r 3 3r 1
6 4 30r 6 1r 1 2r 3 2r 1 2r 3 13r 1 2r 3 1 3r 6 5 32r 6 1r 1
33r 6 87r 1 29r 3 2r 1 6 4 29r 6 1 3r 3 2r 1 1r 3 14r 1 1r 3
3r 1 2r 6 5 30r 6 1r 1 34r 6 87r 1 30r 3 2r 1 6 4 27r 6 1r 1
2r 3 2r 1 1r 3 15r 1 1r 3 3r 1 2r 6 5 29r 6 1r 1 34r 6 89r 1
31r 3 1 1r 6 4 25r 6 1r 1 3r 3 1r 1 2r 3 15r 1 2r 3 2r 1 3r 6
5 27r 6 1r 1 35r 6 90r 1 34r 6 1r 4 22r 6 1r 1 3r 3 2r 1 1r 3
17r 1 1r 3 3r 1 2r 6 1r 5 24r 6 1r 1 1r 3 2r 1 31r 6 91r 1 35r 6
1r 4 20r 6 1r 1 4r 3 1r 1 1r 3 18r 1 1r 3 3r 1 3r 6 1r 5 22r 6
1r 1 3 3r 1 31r 6 93r 1 35r 6 2r 4 17r 6 1r 1 4r 3 2r 1 3 19r 1
2r 3 2r 1 5r 6 1r 5 18r 6 1r 1 1r 3 3r 1 31r 6 95r 1 36r 6 2r 4
12r 6 3r 1 5r 3 2r 1 3 20r 1 2r 3 1r 1 6r 6 9r 5 3r 6 6r 1 1r 3
3r 1 31r 6 97r 1 37r 6 2r 4 5r 6 6r 1 6r 3 25r 1 3r 3 1r 1 11r 6
11r 1 3r 3 3r 1 31r 6 99r 1 38r 6 11r 1 10r 3 23r 1 4r 3 1 26r 3
3r 1 31r 6 101r 1 40r 6 6r 1 13r 3 23r 1 29r 3 3r 1 32r 6 104r 1
60r 3 22r 1 64r 6 108r 1 32r 3 7r 1 18r 3 20r 1 63r 6 112r 1
29r 3 9r 1 19r 3 12r 1 3 2r 1 63r 6 115r 1 29r 3 8r 1 97r 6
121r 1 131r 6 126r 1 125r 6 132r 1 119r 6 139r 1 57r 6 2r 1
51r 6 146r 1 49r 6 12r 1 40r 6 157r 1 39r 6 25r 1 25r 6 172r 1
9r 6 32514r 2 13r 6 236r 2 25r 6 225r 2 35r 6 217r 2 66r 6 186r 2
75r 6 177r 2 80r 6 172r 2 85r 6 167r 2 44r 3 5r 2 38r 6 164r 2
29r 6 1r 2 12r 3 7r 2 39r 6 160r 2 14r 6 23r 2 7r 3 6r 2 42r 6
157r 2 11r 6 6r 4 18r 6 8r 2 10r 6 7r 2 33r 6 154r 2 9r 6 4r 4
26r 6 35r 2 24r 6 150r 2 8r 6 3r 4 31r 6 3r 1 23r 6 15r 2 16r 6
148r 2 8r 6 2r 4 33r 6 3r 1 37r 6 4r 2 15r 6 145r 2 8r 6 1r 4
36r 6 2r 1 40r 6 4r 2 13r 6 144r 2 6r 6 1r 4 38r 6 1r 1 44r 6
4r 2 11r 6 142r 2 6r 6 1r 4 40r 6 1 47r 6 2r 2 11r 6 140r 2
6r 6 1r 4 41r 1 50r 6 2r 2 10r 6 138r 2 6r 6 4 42r 6 1 51r 6
2r 2 10r 6 136r 2 6r 6 4 42r 6 1 53r 6 2r 2 10r 6 134r 2 6r 6
1r 4 42r 1 55r 6 3r 2 9r 6 133r 2 6r 4 43r 1 57r 6 3r 2 9r 6
131r 2 6r 6 4 43r 1 58r 6 3r 2 8r 6 130r 2 6r 6 4 42r 1 61r 6
3r 2 8r 6 128r 2 6r 6 4 42r 1 63r 6 3r 2 8r 6 127r 2 6r 6 4
40r 6 1 65r 6 3r 2 8r 6 125r 2 6r 6 4 40r 6 1 67r 6 3r 2 7r 6
124r 2 6r 6 1r 4 39r 6 1r 1 67r 6 3r 2 8r 6 123r 2 6r 6 4 40r 6
1 69r 6 3r 2 7r 6 122r 2 6r 6 4 40r 6 1 70r 6 4r 2 7r 6 121r 2
5r 6 1r 4 40r 1 72r 6 4r 2 7r 6 119r 2 6r 6 4 40r 1 73r 6 4r 2
7r 6 119r 2 5r 6 1r 4 40r 1 73r 6 5r 2 7r 6 117r 2 6r 6 4 40r 1
74r 6 5r 2 7r 6 116r 2 6r 6 1r 4 39r 6 1 74r 6 6r 2 7r 6 115r 2
6r 6 1r 4 39r 1 74r 6 7r 2 7r 6 114r 2 6r 6 1r 4 39r 6 1 73r 6
3r 5 3r 6 2 8r 6 113r 2 6r 6 1r 4 39r 6 1 73r 6 1r 5 5r 6 1r 2
7r 6 112r 2 7r 6 1r 4 39r 6 1 73r 6 5 7r 6 2 8r 6 111r 2 6r 6
1r 4 40r 1 73r 6 1r 5 7r 6 2 8r 6 110r 2 7r 6 1r 4 41r 1 72r 6
5 9r 6 2 7r 6 110r 2 6r 6 2r 4 41r 1 71r 6 1r 5 9r 6 2 8r 6
108r 2 7r 6 1r 4 42r 1 71r 6 5 10r 6 2 8r 6 107r 2 8r 6 1r 4
43r 1 69r 6 1r 5 11r 6 2 8r 6 108r 2 6r 6 1r 4 43r 1 69r 6 5
12r 6 2 8r 6 111r 2 2r 6 1r 4 45r 1 67r 6 1r 5 12r 6 2 8r 6
107r 1 3r 6 1r 2 6 1r 4 45r 1 67r 6 5 13r 6 2 8r 6 107r 1 6r 6
1r 4 45r 6 1 65r 6 5 14r 6 2 9r 6 105r 1 8r 6 4 46r 1 65r 6
5 15r 6 2 8r 6 105r 1 8r 6 4 46r 6 1 63r 6 5 16r 6 2 8r 6 105r 1
8r 6 4 46r 6 1 62r 6 5 17r 2 1r 3 2 2r 6 108r 1 9r 6 4 47r 1
62r 5 19r 2 6 1r 1 6r 6 103r 1 9r 6 4 47r 6 1 60r 5 20r 6 1
3 1 6r 6 102r 1 10r 6 4 47r 6 1 59r 5 21r 6 3 1r 1 7r 6 101r 1
10r 6 4 47r 6 1 58r 5 22r 6 3 1r 1 7r 6 101r 1 9r 6 1r 4 48r 6
1 56r 6 5 22r 6 3 1r 1 7r 6 100r 1 10r 6 4 49r 6 1r 1 54r 6
5 23r 6 3 1r 1 7r 6 100r 1 10r 6 4 50r 6 1 53r 6 5 24r 6 3 1r 1
8r 6 98r 1 11r 6 4 51r 6 1 51r 6 5 25r 6 3 1r 1 8r 6 98r 1 11r 4
53r 6 1 50r 5 26r 1 3 1r 1 8r 6 98r 1 11r 4 54r 6 1 48r 5 27r 1
3 1r 1 8r 6 97r 1 11r 6 4 55r 6 1 46r 5 28r 1 3 1r 1 8r 6 97r 1
11r 6 4 56r 6 1 44r 5 29r 1 12r 6 95r 1 12r 6 4 57r 6 1 42r 6
5 28r 6 1 12r 6 95r 1 12r 6 4 57r 6 1 40r 6 1r 5 29r 6 1 12r 6
95r 1 12r 6 4 58r 6 1 38r 6 5 31r 6 1 12r 6 94r 1 13r 6 4 58r 6
1r 1 36r 6 5 32r 6 1 12r 6 94r 1 13r 6 4 58r 6 1r 1 34r 6 1r 5
33r 6 1 13r 6 93r 1 13r 6 4 58r 6 1 35r 5 35r 1 14r 6 92r 1
14r 6 4 57r 6 1r 1 33r 6 5 35r 6 1 14r 6 92r 1 14r 6 4 57r 6
1 32r 6 5 37r 6 1 14r 6 91r 1 15r 6 4 57r 6 1 22r 6 1r 1 4r 6
1r 5 39r 6 1 14r 6 91r 1 15r 6 4 56r 6 1r 1 22r 6 2r 1 2r 6
5 41r 6 1 15r 6 90r 1 15r 6 4 56r 6 1 24r 6 5 45r 6 1 16r 6
90r 1 12r 3 1r 1 6 4 55r 6 1r 1 23r 6 5 46r 6 1 16r 6 89r 1
13r 3 1r 1 1r 4 55r 6 1 23r 6 5 47r 6 1 16r 6 89r 1 13r 3 2r 1
6 4 53r 6 1r 1 22r 6 5 48r 6 1 16r 6 89r 1 14r 3 1r 1 6 4 52r 6
1r 1 22r 6 5 48r 6 1 17r 6 88r 1 15r 3 1r 1 6 4 52r 6 1 22r 5
50r 6 1 17r 6 88r 1 15r 3 2r 6 4 51r 6 1r 1 21r 5 51r 6 1 17r 6
88r 1 15r 3 2r 1 4 51r 6 1 21r 5 52r 1 18r 6 87r 1 17r 3 1r 1
6 4 49r 6 1r 1 21r 5 51r 6 1 18r 6 87r 1 17r 3 1r 1 6 4 48r 6
1r 1 21r 6 5 51r 6 1 19r 6 86r 1 17r 3 2r 6 4 48r 6 1r 1 21r 5
52r 6 1 19r 6 85r 1 19r 3 1r 1 6 4 47r 6 1r 1 19r 6 5 52r 6
1 20r 6 85r 1 19r 3 1r 1 6 4 47r 6 1 20r 6 5 52r 6 1 20r 6 85r 1
20r 3 1 6 4 46r 6 1r 1 21r 5 51r 6 1 21r 6 85r 1 21r 3 6 4 46r 6
1r 1 21r 6 5 50r 6 1 21r 6 84r 1 22r 3 1 6 4 45r 6 1 21r 6 1r 1
5 49r 6 1 22r 6 84r 1 24r 6 4 45r 6 1 22r 6 5 49r 6 1 23r 6
83r 1 24r 6 4 45r 6 1 6r 3 5r 1 9r 6 5 48r 6 1 1r 3 1 21r 6
83r 1 25r 6 4 44r 6 1 5r 3 7r 1 8r 6 5 48r 6 1 3 2r 1 20r 6
83r 1 25r 6 4 44r 6 1 4r 3 10r 1 7r 5 47r 6 1 3 2r 1 21r 6 82r 1
26r 6 1r 4 43r 6 1 3r 3 12r 1 6r 5 46r 6 1 3 2r 1 22r 6 82r 1 27r 6
1r 4 42r 6 1 3r 3 13r 1 5r 5 46r 6 1 3 2r 1 22r 6 82r 1 28r 6
4 42r 6 1 2r 3 14r 1 5r 6 5 44r 6 1 3 2r 1 23r 6 82r 1 28r 6
4 41r 6 1 3r 3 15r 1 4r 6 5 44r 6 1 3 1r 1 24r 6 82r 1 29r 6
4 40r 6 1 3r 3 15r 1 4r 6 5 43r 6 1 1r 3 1r 1 24r 6 82r 1 29r 6

1r 4 39r 6 1 3r 3 15r 1 4r 6 5 42r 6 1r 1 28r 6 83r 1 29r 6 1r 4 38r 6 1 3r 3 16r 1 3r 6 5 42r 6 1 29r 6 83r 1 29r 6 1r 4 37r 6 1r 1 3r 3 16r 1 3r 6 5 41r 6 1r 1 29r 6 83r 1 30r 6 4 37r 6 1 3r 3 17r 1 4r 5 40r 6 1r 1 30r 6 83r 1 31r 6 4 36r 6 1 3r 3 17r 1 4r 6 5 39r 6 1 31r 6 83r 1 27r 3 1r 1 1r 6 1r 4 34r 6 1r 1 4r 3 17r 1 3r 6 5 38r 6 1 32r 6 83r 1 27r 3 3r 1 6 1r 4 33r 6 1 6r 3 16r 1 4r 6 5 36r 6 1 32r 6 85r 1 26r 3 4r 1 6 4 32r 6 1r 1 2r 3 1r 1 1r 3 16r 1 4r 6 5 35r 6 1r 1 32r 6 85r 1 27r 3 4r 1 6 4 31r 6 1 2r 3 2r 1 1r 3 15r 1 6r 6 5 33r 6 1r 1 33r 6 85r 1 27r 3 4r 1 6 1r 4 29r 6 1r 1 2r 3 2r 1 1r 3 15r 1 6r 6 5 32r 6 1r 1 33r 6 87r 1 27r 3 4r 1 6 1r 4 27r 6 1r 1 3r 3 2r 1 1r 3 15r 1 3 2r 1 3r 6 5 30r 6 1r 1 34r 6 87r 1 29r 3 3r 1 6 1r 4 26r 6 1r 1 3r 3 1r 1 1r 3 16r 1 3 3r 1 2r 6 5 29r 6 1r 1 34r 6 89r 1 30r 3 2r 1 6 1r 4 24r 6 1r 1 3r 3 1r 1 1r 3 17r 1 1r 3 2r 1 3r 5 28r 6 1r 1 35r 6 89r 1 32r 3 1 1r 6 1r 4 22r 6 1r 1 4r 3 1r 1 3 18r 1 1r 3 2r 1 3r 6 1r 5 25r 6 1r 1 1r 3 1 32r 6 91r 1 35r 6 2r 4 19r 6 1r 1 4r 3 1r 1 1r 3 18r 1 2r 3 1r 1 4r 6 1r 5 22r 6 1r 1 1r 3 2r 1 31r 6 93r 1 35r 6 3r 4 15r 6 2r 1 5r 3 1 1r 3 20r 1 1r 3 1r 1 5r 6 3r 5 16r 6 2r 1 1r 3 3r 1 31r 6 95r 1 36r 6 3r 4 9r 6 5r 1 6r 3 23r 1 2r 3 1 7r 6 8r 5 4r 6 6r 1 3 4r 1 31r 6 97r 1 37r 6 4r 4 6 9r 1 8r 3 23r 1 17r 6 11r 1 2r 3 4r 1 31r 6 98r 1 39r 6 11r 1 10r 3 24r 1 30r 3 4r 1 31r 6 101r 1 41r 6 4r 1 14r 3 23r 1 28r 3 4r 1 32r 6 104r 1 59r 3 24r 1 25r 3 4r 1 32r 6 108r 1 38r 3 3r 1 16r 3 21r 1 63r 6 110r 1 32r 3 9r 1 17r 3 12r 1 3 2r 1 63r 6 115r 1 30r 3 9r 1 96r 6 120r 1 28r 3 4r 1 97r 6 126r 1 126r 6 131r 1 120r 6 138r 1 56r 6 4r 1 50r 6 146r 1 49r 6 13r 1 39r 6 157r 1 38r 6 26r 1 25r 6 170r 1 11r 6 57r 1 1r 6 32457r 2 7r 6 240r 2 22r 6 228r 2 32r 6 220r 2 62r 6 189r 2 73r 6 179r 2 79r 6 173r 2 84r 6 168r 2 44r 3 4r 2 39r 6 164r 2 31r 6 2 11r 3 7r 2 39r 6 161r 2 15r 6 9r 4 6 8r 2 8r 3 8r 2 41r 6 157r 2 12r 6 2r 4 22r 6 12r 2 9r 6 1r 2 34r 6 155r 2 10r 6 1r 4 29r 6 4r 1 6 3r 1 5r 6 19r 2 22r 6 152r 2 2r 3 1r 2 3r 6 2r 4 33r 6 2r 1 26r 6 9r 2 18r 6 149r 2 2r 3 1r 2 3r 6 4 37r 6 1r 1 32r 6 8r 2 14r 6 147r 2 2r 3 1r 2 2r 6 1r 4 37r 6 2r 1 37r 6 5r 2 14r 6 144r 2 2r 3 2 3r 6 4 39r 6 1r 1 41r 6 5r 2 12r 6 142r 2 2r 3 2 3r 6 4 40r 6 1r 1 44r 6 4r 2 11r 6 140r 2 7r 6 4 41r 6 1 47r 6 3r 2 11r 6 138r 2 6r 6 4 43r 1 50r 6 2r 2 11r 6 136r 2 7r 4 43r 1 52r 6 3r 2 10r 6 135r 2 6r 6 4 42r 1 55r 6 2r 2 9r 6 134r 2 6r 6 4 42r 1 57r 6 2r 2 9r 6 132r 2 6r 6 4 43r 1 58r 6 2r 2 9r 6 130r 2 7r 6 4 42r 1 60r 6 2r 2 9r 6 129r 2 6r 6 4 41r 1 63r 6 2r 2 9r 6 127r 2 6r 6 1r 4 40r 1 65r 6 2r 2 8r 6 126r 2 6r 6 1r 4 39r 6 1 67r 6 2r 2 8r 6 125r 2 6r 6 4 40r 6 1 68r 6 2r 2 8r 6 123r 2 6r 6 1r 4 39r 6 1 69r 6 3r 2 7r 6 122r 2 6r 6 1r 4 39r 6 1 71r 6 2r 2 8r 6 121r 2 6r 6 1r 4 39r 6 1 71r 6 3r 2 7r 6 120r 2 6r 6 1r 4 39r 6 1 72r 6 4r 2 7r 6 119r 2 6r 6 1r 4 38r 6 1 73r 6 4r 2 7r 6 118r 2 6r 6 1r 4 39r 6 1 73r 6 5r 2 7r 6 117r 2 6r 6 4 39r 6 1 74r 6 5r 2 8r 6 115r 2 6r 6 1r 4 39r 6 1 73r 6 3r 5 1r 6 1r 2 7r 6 114r 2 7r 6 1r 4 38r 6 1r 1 73r 6 5 5r 6 2 8r 6 113r 2 6r 6 1r 4 39r 6 1 73r 6 1r 5 5r 6 1r 2 7r 6 112r 2 7r 6 1r 4 39r 6 1 73r 6 5 7r 6 2 7r 6 112r 2 7r 6 4 40r 6 1 72r 6 5 8r 6 2 8r 6 110r 2 7r 6 1r 4 40r 6 1 72r 6 5 9r 6 2 7r 6 110r 2 7r 6 4 42r 1 71r 6 1r 5 9r 6 2 8r 6 109r 2 6r 6 1r 4 42r 1 71r 6 5 10r 6 2 8r 6 108r 2 7r 6 1r 4 42r 1 70r 6 5 12r 2 8r 6 108r 2 7r 6 1r 4 43r 1 69r 6 5 12r 6 2 8r 6 107r 1 6 1r 2 3r 6 1r 4 44r 1 68r 6 5 13r 6 2 8r 6 107r 1 4r 6 2 6 1r 4 45r 1 67r 6 5 13r 6 2 9r 6 106r 1 6r 6 1r 4 45r 1 66r 6 5 14r 6 2 9r 6 105r 1 8r 6 4 45r 6 1 65r 6 5 14r 6 2 9r 6 105r 1 8r 6 4 46r 1 64r 6 5 15r 6 2 10r 6 104r 1 8r 6 4 46r 6 1 62r 6 5 17r 2 6r 6 107r 1 9r 6 4 46r 6 1 62r 5 18r 2 1r 6 3r 1 4r 6 103r 1 9r 4 48r 1 61r 5 19r 6 1 9r 6 102r 1 10r 4 48r 6 1 59r 5 20r 6 1 3 1r 1 7r 6 101r 1 10r 4 48r 6 1 58r 5 21r 6 1r 3 1r 1 7r 6 101r 1 10r 4 49r 6 1 56r 5 22r 6 1r 3 1r 1 7r 6 100r 1 11r 4 50r 6 1 54r 6 5 22r 6 1 3 1r 1 7r 6 100r 1 10r 6 4 50r 6 1 53r 6 5 23r 6 1 3 1r 1 8r 6 98r 1 11r 6 4 51r 6 1 51r 6 5 24r 6 1 3 1r 1 8r 6 98r 1 11r 6 4 52r 6 1 49r 6 5 25r 6 1 3 1r 1 8r 6 98r 1 11r 6 4 53r 6 1 48r 5 26r 6 1 3 1r 1 8r 6 97r 1 12r 4 55r 6 1 46r 5 27r 6 1 3 1r 1 8r 6 97r 1 12r 4 56r 1 45r 5 28r 6 1 3 1r 1 9r 6 95r 1 12r 6 4 57r 1 43r 5 28r 6 1r 1 3 1r 1 9r 6 95r 1 12r 6 4 58r 1 41r 6 5 28r 6 1r 1 3 1 10r 6 95r 1 12r 6 4 58r 6 1 38r 6 5 30r 6 1r 1 3 1 10r 6 94r 1 13r 6 4 59r 1 37r 6 5 31r 6 1r 1 12r 6 94r 1 13r 6 4 59r 6 1 34r 6 1r 5 32r 6 1 14r 6 93r 1 13r 6 4 58r 6 1r 1 34r 5 34r 6 1 14r 6 92r 1 14r 6 4 58r 6 1 32r 6 1r 5 35r 6 1 14r 6 92r 1 14r 6 4 58r 6 1 30r 6 5 39r 6 1 5 36r 6 1r 1 14r 6 91r 1 15r 6 1r 4 56r 6 1 30r 6 5 39r 6 1 14r 6 91r 1 15r 6 1r 4 55r 6 1 24r 6 5 45r 6 1 16r 6 89r 1 16r 6 1r 4 91r 1 15r 6 1r 4 55r 6 1 24r 6 5 45r 6 1 16r 6 89r 1 16r 6 1r 4 55r 6 1 23r 6 5 46r 6 1 16r 6 89r 1 17r 6 4 54r 6 1 23r 5 48r 6 1 16r 6 89r 1 14r 3 1 1r 6 4 54r 6 1 22r 5 49r 6 1 16r 6 89r 1 14r 3 1 1r 6 4 53r 6 1 22r 5 49r 6 1 17r 6 88r 1 15r 3 1r 1 6 4 52r 6 1 22r 5 50r 6 1 17r 6 88r 1 15r 3 1r 1 6 4 52r 6 1 21r 5 51r 6 1 17r 6 88r 1 15r 3 2r 1 6 4 50r 6 1 21r 5 51r 6 1 18r 6 87r 1 16r 3 2r 1 6 4 50r 6 1 20r 6 5 51r 6 1 18r 6 87r 1 17r 3 1r 1 6 4 49r 6 1 21r 5 52r 6 1 19r 6 86r 1 17r 3 2r 6 4 49r 6 1 20r 6 5 51r 6 1 20r 6 85r 1 18r 3 2r 1 4 49r 6 1 19r 6 5 52r 6 1 20r 6 85r 1 19r 3 1r 1 4 48r 6 1 20r 6 5 52r 6 1 20r 6 85r 1 19r 3 2r 6 4 47r 6 1 21r 5 51r 6 1 21r 6 84r 1 21r 3 1r 1 4 47r 6 1 21r 5 51r 6 1 21r 6 84r 1 21r 3 1r 1 4 47r 6 1 22r 5 49r 6 1 22r 6 84r 1 22r 3 1 6 4 46r 1 22r 6 5 49r 6 1 23r 6 83r 1 23r 3 1 4 46r 1 5r 3 6r 1 9r 6 5 48r 6 1 24r 6 83r 1 25r 4 45r 6 1 4r 3 9r 1 7r 6 5 48r 6 1 24r 6 83r 1 25r 6 4 44r 6 1 3r 3 11r 1 6r 6 5 47r 6 1 1r 3 1r 1 21r 6 82r 1 27r 4 44r 6 1 2r 3 13r 1 6r 5 47r 6 1 3 2r 1 21r 6 82r 1 27r 6 4 43r 6 1 2r 3 14r 1 5r 5 46r 6 1 3 3r 1 21r 6 82r 1 27r 6 4 43r 6 1 2r 3 14r 1 5r 5 46r 6 1 3 2r 1 22r 6 82r 1 28r 6 4 42r 6 1 2r 3 15r 1 4r 5 45r 6 1 3 2r 1 23r 6 82r 1 28r 6 4 41r 6 1 3r 3 15r 1 4r 5 44r 6 1r 1 3 2r 1 23r 6 82r 1 29r 4 41r 6 1 3r 3 15r 1 4r 5 44r 6 1 3 1r 1 25r 6 82r 1 30r 4 40r 6 1 3r 3 16r 1 3r 6 5 41r 6 1r 1 1r 3 1 26r 6 83r 1 29r 6 4 38r 6 1 3r 3 17r 1 3r 6 5 41r 6 1 30r 6 83r 1 30r 6 4 37r 6 1 3r 3 17r 1 3r 6 5 40r 6 1r 1 30r 6 83r 1 31r 6 4 36r 6 1 3r 3 18r 1 3r 5 39r 6 1r 1 31r 6 83r 1 31r 6 4 36r 6 1 3r 3 18r 1 3r 6 5 39r 6 1r 1 31r 6 83r 1 27r 3 3r 1 1r 6 4 35r 6 1r 1 3r 3 18r 1 3r 5 39r 6 1 32r 6 83r 1 32r 6 4 34r 6 1 5r 3 17r 1 3r 6 5 37r 6 1 32r 6 84r 1 33r 6 4 32r 6 1r 1 5r 3 17r 1 3r 6 5 36r 6 1 33r 6 85r 1 32r 6 1r 4 31r 6 1 6r 3 17r 1 4r 6 5 34r 6 1r 1 33r 6 85r 1 29r 3 1r 1 1r 6 1r 4 29r 6 1r 1 6r 3 17r 1 4r 6 1r 5 32r 6 1r 1 33r 6 86r 1 28r 3 4r 1 6 1r 4 28r 6 1 6r 3 19r 1 4r 6 5 31r 6 1r 1 34r 6 87r 1 28r 3 4r 1 6 1r 4 26r 6 1r 1 4r 3 21r 1 4r 6 1r 5 29r 6 1r 1 35r 6 87r 1 29r 3 4r 1 6 1r 4 24r 6 1r 1 4r 3 22r 1 5r 6 1r 5 27r 6 1r 1 35r 6 89r 1 29r 3 4r 1 6 1r 4 22r 6 1r 1 4r 3 25r 1 4r 6 1r 5 24r 6 2r 1 35r 6 91r 1 30r 3 3r 1 6 2r 4 19r 6 1r 1 5r 3 25r 1 5r 6 1r 5 22r 6 1r 1 36r 6 92r 1 32r 3 2r 1 1r 6 2r 4 16r 6 1r 1 5r 3 26r 1 6r 6 2r 5 17r 6 3r 1 36r 6 94r 1 38r 6 2r 4 12r 6 2r 1 5r 3 27r 1 8r 6 5r 5 7r 6 6r 1 37r 6 96r 1 39r 6 2r 4 4r 6 6r 1 7r 3 27r 1 10r 6 14r 1 5r 3 1r 1 33r 6 97r 1 40r 6 10r 1 9r 3 27r 1 26r 3 5r 1 32r 6 101r 1 42r 6 3r 1 13r 3 26r 1 22r 3 8r 1 32r 6 104r 1 58r 3 26r 1 21r 3 8r 1 32r 6 106r 1 42r 3 3r 1 12r 3 22r 1 22r 3 6r 1 33r 6 110r 1 37r 3 7r 1 14r 3 14r 1 66r 6 114r 1 34r 3 7r 1 94r 6 119r 1 34r 3 1 96r 6 125r 1 127r 6 130r 1 121r 6

137r 1 56r 6 7r 1 49r 6 144r 1 49r 6 14r 1 39r 6 155r 1 39r 6 27r 1 24r 6 169r 1 12r 6 57r 1 3r 6 32706r 2 19r 6 231r 2 29r 6 222r 2 38r 6 214r 2 70r 6 182r 2 77r 6 175r 2 40r 3 4r 2 36r 6 170r 2 42r 3 5r 2 38r 6 166r 2 42r 3 7r 2 39r 6 162r 2 16r 6 15r 2 11r 3 8r 2 40r 6 159r 2 12r 6 4r 4 16r 6 7r 2 54r 6 156r 2 10r 6 1r 4 29r 6 26r 2 29r 6 153r 2 3r 3 2 5r 6 1r 4 32r 6 3r 1 18r 6 15r 2 18r 6 150r 2 3r 3 1r 2 3r 6 1r 4 35r 6 2r 1 30r 6 8r 2 14r 6 148r 2 3r 3 2 3r 6 1r 4 37r 6 2r 1 38r 6 4r 2 12r 6 145r 2 3r 3 2 3r 6 4 40r 6 1 41r 6 3r 2 12r 6 143r 2 3r 3 2 3r 6 4 41r 6 1 43r 6 3r 2 2r 3 2 7r 6 141r 2 3r 3 2 3r 6 4 41r 6 1 46r 6 2r 2 2r 3 2 7r 6 140r 2 2r 3 2 2r 6 1r 4 41r 6 1 48r 6 2r 2 2r 3 2 7r 6 138r 2 6r 6 4 42r 6 1 51r 6 2r 2 1r 3 2 7r 6 136r 2 6r 6 4 42r 6 1 54r 6 1r 2 3 1r 2 7r 6 134r 2 3r 3 2 2r 4 42r 6 1 56r 6 1r 2 3 2 8r 6 132r 2 7r 6 4 41r 6 1 58r 6 1r 2 9r 6 132r 2 3r 3 2 1r 6 4 42r 1 60r 6 1r 2 9r 6 130r 2 6r 6 4 41r 1 63r 6 1r 2 9r 6 128r 2 4r 3 2 1r 4 41r 1 64r 6 2r 2 9r 6 126r 2 4r 3 2 1r 4 41r 6 1 65r 6 2r 2 8r 6 126r 2 4r 3 2 6 4 41r 1 67r 6 2r 2 8r 6 124r 2 4r 3 1r 2 4 41r 1 69r 6 2r 2 8r 6 122r 2 5r 3 2 4 41r 1 70r 6 2r 2 8r 6 122r 2 4r 3 1r 6 4 40r 1 72r 6 2r 2 8r 6 120r 2 5r 3 2 4 41r 1 71r 6 4r 2 7r 6 120r 2 4r 3 1r 6 4 40r 1 71r 6 4r 5 2 8r 6 118r 2 5r 3 2 4 40r 1 72r 6 2r 5 2r 6 2 8r 6 117r 2 5r 3 6 4 39r 1 72r 6 1r 5 5r 2 8r 6 116r 2 5r 3 2 4 39r 6 1 72r 6 1r 5 5r 6 2 8r 6 114r 2 6r 3 2 4 39r 1 73r 6 1r 5 6r 2 8r 6 114r 2 5r 3 2 6 4 39r 1 73r 6 5 7r 6 2 8r 6 112r 2 6r 3 2 4 40r 1 72r 6 1r 5 8r 2 8r 6 112r 2 6r 3 6 4 40r 1 72r 6 5 9r 6 2 8r 6 111r 2 7r 6 4 40r 1 71r 6 1r 5 9r 6 2 8r 6 110r 2 8r 6 4 40r 1 71r 6 5 10r 6 2 9r 6 109r 2 7r 6 4 41r 1 71r 6 5 11r 6 2 8r 6 108r 2 8r 6 4 42r 1 69r 6 5 12r 6 2 8r 6 108r 2 7r 6 1r 4 42r 1 69r 6 5 12r 6 2 9r 6 111r 2 3r 6 1r 4 43r 1 68r 5 13r 6 2 9r 6 107r 1 4r 6 2 6 1r 4 44r 1 67r 6 5 14r 2 9r 6 107r 1 6r 6 1r 4 44r 6 1 66r 5 15r 6 2 9r 6 105r 1 8r 6 4 45r 1 65r 5 16r 6 2 9r 6 105r 1 8r 6 4 45r 6 1 64r 5 16r 6 2 9r 6 105r 1 8r 6 4 45r 6 1 63r 5 18r 2 4r 6 3r 1 6 104r 1 9r 6 4 46r 6 1 61r 5 19r 6 4r 1 5r 6 103r 1 9r 6 4 46r 6 1 61r 5 19r 6 1 9r 6 102r 1 10r 6 4 47r 1 60r 5 20r 6 1 10r 6 101r 1 10r 6 4 47r 6 1 58r 5 21r 6 1 10r 6 101r 1 10r 6 4 48r 1 57r 5 22r 6 1 10r 6 100r 1 11r 6 4 48r 6 1 55r 5 23r 6 1 10r 6 100r 1 11r 4 50r 6 1 53r 5 24r 6 1 10r 6 99r 1 12r 4 51r 6 1 51r 5 25r 6 1 3 1r 1 8r 6 98r 1 12r 4 51r 6 1 50r 5 26r 6 1 3 1r 1 8r 6 97r 1 12r 6 4 52r 6 1 48r 5 27r 6 1 3 1r 1 8r 6 97r 1 12r 6 4 53r 6 1 46r 6 5 27r 6 3 2r 1 8r 6 97r 1 12r 4 55r 6 1 44r 6 5 27r 6 1r 3 2r 1 8r 6 96r 1 13r 4 56r 1 43r 6 5 28r 6 1 3 2r 1 9r 6 95r 1 13r 4 57r 1 41r 6 5 29r 6 1 3 2r 1 9r 6 95r 1 13r 4 58r 1 38r 6 5 31r 6 1 3 1r 1 10r 6 94r 1 14r 4 58r 6 1 36r 6 5 32r 6 1 3 1r 1 10r 6 94r 1 13r 6 4 58r 6 1 35r 6 5 33r 6 1 3 1r 1 10r 6 93r 1 14r 6 4 58r 6 1 23r 6 1r 1 8r 6 5 34r 6 1 3 1r 1 11r 6 92r 1 14r 6 4 58r 6 1 23r 6 1r 1 6r 6 5 36r 6 1 3 1r 1 11r 6 92r 1 15r 4 57r 6 1 24r 6 1 6r 6 5 37r 1 1r 3 1 12r 6 91r 1 16r 4 57r 6 1 23r 6 4r 1 1r 6 5 38r 6 1 1r 3 1 12r 6 91r 1 16r 4 56r 6 1 24r 6 1 6r 6 5 39r 1 1r 3 2 4r 6 1r 4 38r 6 1r 1 37r 6 3r 2 12r 6 146r 2 3r 3 2 4r 6 4 40r 6 1 40r 6 2r 2 13r 6 143r 2 8r 6 1r 4 41r 1 43r 6 2r 2 12r 6 142r 2 7r 6 4 42r 1 46r 6 2r 2 11r 6 140r 2 7r 6 4 42r 1 48r 6 2r 2 11r 6 138r 2 7r 6 4 42r 1 50r 6 2r 2 2r 3 2 7r 6 136r 2 7r 4 43r 1 52r 6 2r 2 1r 3 1r 2 6r 6 135r 2 3r 3 2 2r 4 42r 1 56r 6 2r 2 3 2 7r 6 133r 2 7r 6 4 41r 1 58r 6 2r 2 3 2 7r 6 132r 2 3r 3 2 2r 4 41r 1 60r 6 2r 2 3 2 7r 6 130r 2 52r 6 1 20r 5 51r 6 1 18r 6 87r 1 20r 4 51r 6 1 20r 6 5 51r 6 1 18r 6 87r 1 17r 3 1 1r 4 51r 6 1 20r 5 52r 6 1 18r 6 87r 1 17r 3 1 1r 6 4 49r 6 1r 1 19r 6 5 51r 6 1 20r 6 85r 1 18r 3 1r 1 6 4 49r 6 1 20r 5 52r 6 1 20r 6 85r 1 18r 3 2r 1 4 49r 6 1 19r 6 5 52r 6 1 20r 6 85r 1 18r 3 2r 1 4 48r 6 1 20r 6 5 51r 6 1 21r 6 84r 1 19r 3 3r 6 4 47r 6 1 20r 6 5 51r 6 1 21r 6 84r 1 20r 3 2r 1 4 47r 6 1 21r 5 50r 6 1 22r 6 84r 1 20r 3 2r 1 6 4 46r 1 22r 5 50r 6 1 23r 6 83r 1 21r 3 2r 1 4 45r 6 1 7r 3 1r 1 12r 5 50r 6 1 23r 6 82r 1 22r 3 2r 1 4 45r 6 1 4r 3 8r 1 8r 5 49r 6 1 24r 6 82r 1 23r 3 2r 6 4 44r 6 1 3r 3 10r 1 7r 6 5 48r 6 1 24r 6 82r 1 23r 3 2r 6 4 44r 6 1 2r 3 12r 1 6r 6 5 47r 6 1 25r 6 82r 1 25r 3 1 6 4 43r 6 1 2r 3 13r 1 5r 6 5 47r 6 1 25r 6 82r 1 26r 3 1 4 43r 6 1 1r 3 15r 1 4r 6 5 46r 6 1 26r 6 82r 1 28r 6 4 41r 6 1 2r 3 15r 1 4r 6 5 46r 6 1 3 1r 1 23r 6 82r 1 28r 6 4 41r 6 1 2r 3 15r 1 4r 6 5 45r 6 1 3 2r 1 23r 6 82r 1 29r 4 41r 6 1 2r 3 16r 1 3r 6 5 44r 6 1r 3 3r 1 24r 6 81r 1 29r 6 4 40r 6 1 2r 3 16r 1 4r 5 43r 6 1r 1 3 2r 1 25r 6 81r 1 30r 4 40r 6 1 2r 3 16r 1 4r 5 43r 6 1 3 2r 1 26r 6 81r 1 30r 6 4 38r 6 1 3r 3 17r 1 3r 5 42r 6 1 3 3r 1 25r 6 82r 1 31r 4 38r 6 1 3r 3 17r 1 3r 5 41r 6 1 1r 3 1r 1 27r 6 82r 1 32r 4 37r 6 1 3r 3 17r 1 3r 5 41r 6 1 1r 3 1r 1 28r 6 83r 1 31r 6 1r 4 34r 6 1 4r 3 18r 1 2r 6 5 39r 6 1r 1 1r 3 1 28r 6 83r 1 32r 6 4 34r 6 1 3r 3 19r 1 3r 5 38r 6 1 33r 6 83r 1 33r 6 4 32r 6 1r 1 3r 3 19r 1 3r 5 37r 6 1 33r 6 85r 1 33r 6 4 31r 6 1 4r 3 20r 1 2r 6 5 35r 6 1 34r 6 85r 1 33r 6 1r 4 29r 6 1r 1 4r 3 20r 1 3r 6 5 33r 6 1 35r 6 85r 1 34r 6 1r 4 27r 6 1r 1 4r 3 21r 1 3r 6 5 32r 6 1 35r 6 87r 1 29r 3 3r 1 1r 6 4 26r 6 1 5r 3 21r 1 4r 6 5 30r 6 1 36r 6 87r 1 29r 3 4r 1 1r 6 4 24r 6 1r 1 4r 3 23r 1 4r 6 1r 5 27r 6 1 36r 6 89r 1 29r 3 4r 1 6 1r 4 22r 6 1r 1 4r 3 24r 1 5r 6 1r 5 24r 6 1r 1 36r 6 90r 1 30r 3 4r 1 1r 6 1r 4 19r 6 1r 1 4r 3 26r 1 5r 6 1r 5 22r 6 1r 1 36r 6 92r 1 31r 3 3r 1 1r 6 2r 4 16r 6 1r 1 5r 3 26r 1 6r 6 2r 5 17r 6 3r 1 37r 6 93r 1 33r 3 1r 1 2r 6 3r 4 9r 6 4r 1 5r 3 27r 1 8r 6 5r 5 7r 6 6r 1 38r 6 95r 1 40r 6 2r 4 1r 6 8r 1 7r 3 28r 1 9r 6 14r 1 41r 6 97r 1 41r 6 9r 1 9r 3 27r 1 66r 6 99r 1 44r 6 1r 1 14r 3 26r 1 20r 3 9r 1 33r 6 103r 1 48r 3 1r 1 9r 3 25r 1 18r 3 10r 1 33r 6 106r 1 44r 3 3r 1 10r 3 20r 1 19r 3 11r 1 33r 6 110r 1 39r 3 7r 1 13r 3 14r 1 21r 3 1 3 1 40r 6 114r 1 37r 3 5r 1 93r 6 119r 1 132r 6 125r 1 127r 6 130r 1 121r 6 136r 1 56r 6 8r 1 48r 6 145r 1 49r 6 14r 1 39r 6 155r 1 38r 6 29r 1 22r 6 170r 1 12r 6 59r 1 1r 6 32707r 2 16r 6 234r 2 27r 6 224r 2 36r 6 216r 2 68r 6 183r 2 76r 6 176r 2 40r 3 4r 2 36r 6 171r 2 40r 3 7r 2 36r 6 167r 2 12r 6 2 28r 3 7r 2 39r 6 163r 2 11r 6 18r 2 11r 3 10r 2 39r 6 159r 2 12r 6 4r 4 15r 6 6r 2 55r 6 157r 2 10r 6 2r 4 29r 6 21r 2 33r 6 154r 2 2r 3 1r 2 4r 6 2r 4 33r 6 1r 1 21r 6 11r 2 19r 6 150r 2 3r 3 1r 2 4r 6 1r 4 36r 6 1 31r 6 7r 2 14r 6 148r 2 3r 3 2 4r 6 1r 4 38r 6 1r 1 37r 6 3r 2 12r 6 146r 2 3r 3 2 4r 6 4 40r 6 1 40r 6 2r 2 13r 6 143r 2 8r 6 1r 4 41r 1 43r 6 2r 2 12r 6 142r 2 7r 6 4 42r 1 46r 6 2r 2 11r 6 140r 2 7r 6 4 42r 1 48r 6 2r 2 11r 6 138r 2 7r 6 4 42r 1 50r 6 2r 2 2r 3 2 7r 6 136r 2 7r 4 43r 1 52r 6 2r 2 1r 3 1r 2 6r 6 135r 2 3r 3 2 2r 4 42r 1 56r 6 2r 2 3 2 7r 6 133r 2 7r 6 4 41r 1 58r 6 2r 2 3 2 7r 6 132r 2 3r 3 2 2r 4 41r 1 60r 6 2r 2 3 2 7r 6 130r 2 7r 4 41r 1 62r 6 2r 2 3 2 7r 6 128r 2 4r 3 2 1r 4 41r 6 1 63r 6 2r 2 3 2 6r 6 128r 2 3r 3 2 1r 6 4 40r 6 1 65r 6 2r 2 3 2 6r 6 126r 2 4r 3 2 1r 4 41r 1 66r 6 3r 3 2 7r 6 124r 2 4r 3 1r 2 4 41r 1 68r 6 2r 2 3 2 6r 6 124r 2 4r 3 2 6 4 40r 1 70r 6 2r 2 3 2 6r 6 122r 2 4r 3 1r 2 4 40r 1 72r 6 2r 3 2 7r 6 120r 2 5r 3 2 4 41r 1 69r 6 5r 2 3 2 6r 6 120r 2 5r 3 2 4 40r 1 70r 6 6r 2 3 2 6r 6 118r 2 5r 3 2 4 40r 1 71r 6 6r 2 3 2 6r 6 118r 2 5r 3 2 4 39r 6 1 71r 6 2r 5 2r 6 1r 2 3 2 6r 6 116r 2 5r 3 1r 4 39r 6 1 71r 6 2r 5 4r 6 2 3 2 7r 6 115r 2 5r 3 2 4 39r 6 1 71r 6 1r 5 5r 6 1r 2 3 2 6r 6 114r 2 5r 3 1r 6 4 39r 1 72r 6 1r 5 6r 6 2 3 2 7r 6 113r 2 5r 3 2 4 40r 1 72r 6 5 8r 6 2 8r 6 112r 2 6r 3 2 4 40r 1 71r 6 1r 5 8r 6 2 9r 6 111r 2 5r 3 1r 6 4 40r 1 71r 6 1r 5 8r 6 2 9r 6 110r 2 6r 3 2 4 41r 1 70r 6 1r 5 10r 6 2 9r 6 109r 2 6r 3 2 4 41r 6 1 69r 6 1r 5 10r 6 2 9r 6 108r 2 6r 3 2 6 4 41r 6 1 63r 6 5 16r 6 2 9r 6 105r 1 9r 6 4 44r 6 1 63r 6 5 16r 6 2 8r 6 105r 1 10r 6 4 44r 6 1 63r 5 16r 6 1r 2 3r 6 2r 1 2r 6 104r 1 10r 6 4 45r 1 62r 5 17r 6 1r 1 10r 6 103r 1 10r 6 4 45r 6 1 61r 5 18r 6 1 10r 6 102r 1 11r 4 46r 6 1 60r 5 20r 1 11r 6 101r 1 11r 4 47r 6 1 58r 5 21r 6 1 10r 6 101r 1 11r 4 48r 1 57r 5 22r 6 1 10r 6 100r 1 11r 6 4 48r 6 1 55r 5 23r 6 1 10r 6 100r 1 11r 6 4 49r 6 1 53r 5 24r 6 1 10r 6 99r 1 12r 4 51r 6 1 52r 6 5 24r 6 1 11r 6 98r 1 12r 4 51r 6 1 50r 6 5 25r 6 1 11r 6 97r 1 13r 4 52r 6 1 48r 6 5 26r 6 1 3 1 9r 6 97r 1 13r 4 53r 6 1 46r 6 5 27r 6 1 3 1 9r 6 97r 1 12r 6 4 54r 1 45r 6 5 27r 6 1r 3 2r 1 8r 6 96r 1 13r 6 4 55r 1 43r 6 5 28r 6 1 3 2r 1 9r 6 95r 1 13r 4 56r 6 1 41r 6 5 30r 1 3 1r 1 10r 6 94r 1 14r 4 57r 6 1 38r 6 5 31r 6 1 3 1r 1 10r 6 94r 1 14r 4 58r 6 1 36r 6 5 32r 6 1 3 1r 1 10r 6 94r 1 14r 4 58r 6 1 35r 6 5 33r 6 3 2r 1 11r 6 92r 1 15r 4 58r 6 1 6r 6 3r 1 21r 6 1r 5 35r 6 3 2r 1 11r 6 92r 1 15r 4 58r 6 1 9r 6 6r 1 15r 6 5 36r 1 3 2r 1 11r 6 92r 1 15r 4 57r 6 1 15r 6 5r 1 9r 6 5 37r 6 1 3 1r 1 12r 6 91r 1 16r 4 57r 6 1 20r 6 7r 1 1r 6 5 38r 6 1 3 1r 1 12r 6 91r 1 16r 4 57r 6 1 24r 6 2r 5 42r 6 1 3 1r 1 12r 6 90r 1 17r 4 56r 6 1 24r 6 5 45r 6 1 3 1r 1 13r 6 89r 1 17r 4 56r 6 1 22r 6 5 47r 1 1r 3 1 14r 6 89r 1 17r 6 4 54r 6 1 22r 5 48r 6 1 17r 6 89r 1 17r 6 4 54r 6 1 20r 5 50r 6 1 17r 6 88r 1 18r 6 4 53r 6 1 20r 5 51r 6 1 17r 6 88r 1 19r 4 52r 6 1 20r 6 5 50r 6 1 18r 6 88r 1 19r 4 52r 6 1 20r 5 51r 6 1 18r 6 87r 1 20r 4 51r 6 1 20r 5 52r 6 1 18r 6 87r 1 20r 6 4 50r 6 1 20r 5 51r 6 1r 1 19r 6 86r 1 20r 6 4 49r 6 1r 1 19r 5 52r 6 1 20r 6 85r 1 22r 4 49r 6 1 19r 6 5 52r 6 1 20r 6 85r 1 22r 4 49r 6 1 18r 6 5 52r 6 1 21r 6 85r 1 19r 3 1 1r 6 4 47r 6 1 20r 5 52r 6 1 21r 6 84r 1 20r 3 1r 1 6 4 47r 6 1 20r 6 5 51r 6 1 21r 6 84r 1 20r 3 2r 1 4 47r 6 1 20r 6 5 50r 6 1 22r 6 84r 1 20r 3 2r 1 6 4 45r 6 1 22r 5 50r 6 1 23r 6 83r 1 21r 3 2r 1 4 45r 6 1 8r 3 1 12r 5 49r 6 1 24r 6 82r 1 23r 3 2r 1 4 44r 6 1 3r 3 10r 1 7r 6 5 48r 6 1 24r 6 82r 1 23r 3 2r 1 6 4 43r 6 1 2r 3 12r 1 6r 6 5 47r 6 1 25r 6 82r 1 24r 3 2r 6 4 43r 6 1 2r 3 13r 1 5r 6 5 47r 6 1 25r 6 82r 1 25r 3 1r 1 4 43r 6 1 2r 3 13r 1 5r 6 5 46r 6 1 26r 6 82r 1 26r 3 1 6 4 41r 6 1 3r 3 14r 1 4r 6 5 46r 6 1 27r 6 81r 1 27r 3 1 4 41r 6 1 3r 3 14r 1 4r 6 5 45r 6 1 28r 6 81r 1 29r 6 4 40r 6 1 3r 3 15r 1 3r 6 5 44r 6 1 1r 3 1r 1 25r 6 81r 1 30r 4 40r 6 1 3r 3 15r 1 3r 6 5 43r 6 1r 1 3 2r 1 25r 6 81r 1 30r 6 4 39r 6 1 2r 3 16r 1 3r 6 5 42r 6 1r 1 3 2r 1 26r 6 81r 1 30r 6 4 38r 6 1 3r 3 17r 1 3r 5 42r 6 1 3 3r 1 26r 6 81r 1 31r 6 4 37r 6 1 3r 3 17r 1 3r 5 41r 6 1 1r 3 2r 1 26r 6 82r 1 31r 6 4 37r 6 1 3r 3 17r 1 3r 5 41r 6 1 3 2r 1 27r 6 82r 1 32r 6 4 35r 6 1r 1 3r 3 18r 1 2r 5 40r 6 1 1r 3 1r 1 28r 6 83r 1 32r 6 4 34r 6 1 4r 3 18r 1 2r 6 5 38r 6 1r 1 3 1r 1 29r 6 83r 1 32r 6 4 34r 6 1 3r 3 19r 1 2r 6 5 37r 6 1r 1 33r 6 83r 1 33r 6 4 32r 6 1r 1 3r 3 19r 1 3r 5 37r 6 1 33r 6 84r 1 34r 6 4 31r 6 1 4r 3 19r 1 3r 6 5 35r 6 1 34r 6 85r 1 34r 6 4 29r 6 1 4r 3 21r 1 2r 6 5 34r 6 1 35r 6 85r 1 35r 6 4 27r 6 1r 1 4r 3 21r 1 3r 6 5 31r 6 1r 1 35r 6 86r 1 36r 6 4 25r 6 1r 1 4r 3 22r 1 4r 6 5 29r 6 1r 1 36r 6 87r 1 32r 3 1r 1 1r 6 1r 4 23r 6 1 5r 3 23r 1 3r 6 2r 5 26r 6 1r 1 36r 6 89r 1 30r 3 3r 1 1r 6 1r 4 20r 6 2r 1 4r 3 24r 1 4r 6 2r 5 24r 6 1r 1 36r 6 90r 1 30r 3 4r 1 1r 6 2r 4 16r 6 3r 1 4r 3 25r 1 6r 6 2r 5 20r 6 2r 1 36r 6 92r 1 30r 3 4r 1 2r 6 2r 4 13r 6 3r 1 5r 3 25r 1 7r 6 3r 5 16r 6 2r 1 38r 6 93r 1 31r 3 3r 1 3r 6 2r 4 9r 6 3r 1 7r 3 26r 1 8r 6 5r 5 7r 6 5r 1 39r 6 95r 1 33r 3 1r 1 4r 6 13r 1 7r 3 27r 1 11r 6 13r 1 41r 6 97r 1 42r 6 7r 1 11r 3 26r 1 66r 6 99r 1 53r 3 1r 1 5r 3 26r 1 23r 3 2r 1 37r 6 103r 1 49r 3 3r 1 6r 3 24r 1 15r 3 12r 1 35r 6 106r 1 46r 3 5r 1 7r 3 18r 1 17r 3 13r 1 34r 6 110r 1 42r 3 5r 1 13r 3 10r 1 3 1r 1 20r 3 4r 1 39r 6 114r 1 137r 6 119r 1 132r 6 125r 1 127r 6 130r 1 121r 6 137r 1 55r 6 9r 1 47r 6 145r 1 48r 6 16r 1 38r 6 155r 1 37r 6 30r 1 21r 6 172r 1 10r 6 60r 1 2r 6 32708r 2 13r 6 236r 2 25r 6 226r 2 34r 6 217r 2 66r 6 186r 2 74r 6 178r 2 38r 3 6r 2 34r 6 172r 2 40r 3 8r 2 35r 6 168r 2 40r 3 10r 2 36r 6 164r 2 16r 6 9r 2 16r 3 11r 2 36r 6 161r 2 12r 6 3r 4 14r 6 6r 2 56r 6 157r 2 11r 6 2r 4 26r 6 21r 2 35r 6 154r 2 10r 6 1r 4 31r 6 35r 2 20r 6 152r 2 9r 6 1r 4 35r 6 2r 1 30r 6 6r 2 15r 6 149r 2 9r 6 4 37r 6 2r 1 36r 6 2r 2 14r 6 147r 2 8r 6 1r 4 39r 6 1r 1 38r 6 3r 2 12r 6 145r 2 8r 6 4 41r 6 1 41r 6 3r 2 11r 6 143r 2 7r 6 1r 4 42r 1 44r 6 2r 2 11r 6 141r 2 7r 6 4 42r 6 1 47r 6 2r 2 10r 6 139r 2 7r 6 4 42r 1 50r 6 2r 2 10r 6 137r 2 7r 6 4 42r 1 52r 6 2r 2 10r 6 136r 2 6r 4 42r 6 1 54r 6 2r 2 10r 6 134r 2 6r 6 4 41r 6 1 56r 6 3r 2 9r 6 132r 2 7r 4 41r 6 1 58r 6 3r 2 9r 6 130r 2 7r 4 41r 6 1 61r 6 2r 2 3 2 6r 6 129r 2 7r 6 4 40r 6 1 63r 6 2r 2 3 2 6r 6 128r 2 7r 4 41r 1 65r 6 1r 2 3 1r 2 6r 6 126r 2 4r 3 2 1r 4 41r 1 66r 6 2r 2 3 2 7r 6 124r 2 4r 3 2 1r 4 41r 1 68r 6 2r 2 3 2 6r 6 124r 2 4r 3 2 6 4 40r 1 70r 6 2r 2 4r 3 2 6 4 40r 6 1 70r 6 2r 2 3 2 6r 6 122r 2 5r 3 2 4 40r 6 1 71r 6 1r 2 3 2 6r 6 121r 2 5r 3 2 6 4 40r 1 71r 6 3r 2 3 2 6r 6 120r 2 5r 3 2 4 40r 1 71r 6 4r 2 3 1r 2 6r 6 118r 2 5r 3 2 6 4 39r 1 71r 6 6r 2 3 2 6r 6 118r 2 5r 3 2 4 39r 6 1 71r 6 1r 5 3r 6 1r 3 1r 2 6r 6 116r 2 6r 3 6 4 39r 1 71r 6 1r 5 5r 6 2 3 2 7r 6 115r 2 5r 3 2 4 39r 6 1 71r 6 1r 5 5r 6 2r 1 38r 6 93r 1 114r 2 6r 3 2 4 39r 6 1 71r 6 5 7r 6 2 3 2 7r 6 113r 2 5r 3 1r 6 4 39r 1 71r 6 1r 5 7r 6 2 3 1r 2 6r 6 112r 2 6r 3 2 4 39r 6 1 71r 6 5 9r 6 3 1r 2 7r 6 111r 2 5r 3 1r 2 4 39r 6 1 70r 6 1r 5 9r 6 2 3 2 7r 6 110r 2 6r 3 1r 6 4 40r 1 70r 6 1r 5 10r 2 3 2 8r 6 109r 2 6r 3 2 6 4 40r 1 69r 6 1r 5 11r 6 2 9r 6 108r 2 41r 6 1 3r 3 14r 1 4r 6 5 46r 6 1 27r 6 81r 1 27r 3 1 4 41r 6 1 3r 3 14r 1 4r 6 5 45r 6 1 28r 6 81r 1 29r 6 4 40r 6 1 3r 3 15r 1 3r 6 5 44r 6 1 1r 3 1r 1 25r 6 81r 1 30r 4 40r 6 1 3r 3 15r 1 3r 6 5 43r 6 1r 1 3 2r 1 25r 6 81r 1 30r 6 4 39r 6 1 2r 3 16r 1 3r 6 5 42r 6 1r 1 3 2r 1 26r 6 81r 1 30r 6 4 38r 6 1 3r 3 17r 1 3r 5 42r 6 1 3 3r 1 26r 6 81r 1 31r 6 4 37r 6 1 3r 3 17r 1 3r 5 41r 6 1 1r 3 2r 1 26r 6 82r 1 31r 6 4 37r 6 1 3r 3 17r 1 3r 5 41r 6 1 3 2r 1 27r 6 82r 1 32r 6 4 35r 6 1r 1 3r 3 18r 1 2r 5 40r 6 1 1r 3 1r 1 28r 6 83r 1 32r 6 4 34r 6 1 4r 3 18r 1 2r 6 5 38r 6 1r 1 3 1r 1 29r 6 83r 1 32r 6 4 34r 6 1 3r 3 19r 1 2r 6 5 37r 6 1r 1 33r 6 83r 1 33r 6 4 32r 6 1r 1 3r 3 19r 1 3r 5 37r 6 1 33r 6 84r 1 34r 6 4 31r 6 1 4r 3 19r 1 3r 6 5 35r 6 1 34r 6 85r 1 34r 6 4 29r 6 1 4r 3 21r 1 2r 6 5 34r 6 1 35r 6 85r 1 35r 6 4 27r 6 1r 1 4r 3 21r 1 3r 6 5 31r 6 1r 1 35r 6 86r 1 36r 6 4 25r 6 1r 1 4r 3 22r 1 4r 6 5 29r 6 1r 1 36r 6 87r 1 32r 3 1r 1 1r 6 1r 4 23r 6 1 5r 3 23r 1 3r 6 2r 5 26r 6 1r 1 36r 6 89r 1 30r 3 3r 1 1r 6 1r 4 20r 6 2r 1 4r 3 24r 1 4r 6 2r 5 24r 6 1r 1 36r 6 90r 1 30r 3 4r 1 1r 6 2r 4 16r 6 3r 1 4r 3 25r 1 6r 6 2r 5 20r 6 2r 1 36r 6 92r 1 30r 3 4r 1 2r 6 2r 4 13r 6 3r 1 5r 3 25r 1 7r 6 3r 5 16r 6 2r 1 38r 6 93r 1 31r 3 3r 1 3r 6 2r 4 9r 6 3r 1 7r 3 26r 1 8r 6 5r 5 7r 6 5r 1 39r 6 95r 1 33r 3 1r 1 4r 6 13r 1 7r 3 27r 1 11r 6 13r 1 41r 6 97r 1 42r 6 7r 1 11r 3 26r 1 66r 6 99r 1 53r 3 1r 1 5r 3 26r 1 23r 3 2r 1 37r 6 103r 1 49r 3 3r 1 6r 3 24r 1 15r 3 12r 1 35r 6 106r 1 46r 3 5r 1 7r 3 18r 1 17r 3 13r 1 34r 6 110r 1 42r 3 5r 1 13r 3 10r 1 3 1r 1 20r 3 4r 1 39r 6 114r 1 137r 6 119r 1 132r 6 125r 1 127r 6 130r 1 121r 6 137r 1 55r 6 9r 1 47r 6 145r 1 48r 6 16r 1 38r 6 155r 1 37r 6 30r 1 21r 6 172r 1 10r 6 60r 1 2r 6 32708r 2 13r 6 236r 2 25r 6 226r 2 34r 6 217r 2 66r 6 186r 2 74r 6 178r 2 38r 3 6r 2 34r 6 172r 2 40r 3 8r 2 35r 6 168r 2 40r 3 10r 2 36r 6 164r 2 16r 6 9r 2 16r 3 11r 2 36r 6 161r 2 12r 6 3r 4 14r 6 6r 2 56r 6 157r 2 11r 6 2r 4 26r 6 21r 2 35r 6 154r 2 10r 6 1r 4 31r 6 35r 2 20r 6 152r 2 9r 6 1r 4 35r 6 2r 1 30r 6 6r 2 15r 6 149r 2 9r 6 4 37r 6 2r 1 36r 6 2r 2 14r 6 147r 2 8r 6 1r 4 39r 6 1r 1 38r 6 3r 2 12r 6 145r 2 8r 6 4 41r 6 1 41r 6 3r 2 11r 6 143r 2 7r 6 1r 4 42r 1 44r 6 2r 2 11r 6 141r 2 7r 6 4 42r 6 1 47r 6 2r 2 10r 6 139r 2 7r 6 4 42r 1 50r 6 2r 2 10r 6 137r 2 7r 6 4 42r 1 52r 6 2r 2 10r 6 136r 2 6r 4 42r 6 1 54r 6 2r 2 10r 6 134r 2 6r 6 4 41r 6 1 56r 6 3r 2 9r 6 132r 2 7r 4 41r 6 1 58r 6 3r 2 9r 6 130r 2 7r 4 41r 6 1 61r 6 2r 2 3 2 6r 6 129r 2 7r 6 4 40r 6 1 63r 6 2r 2 3 2 6r 6 128r 2 7r 4 41r 1 65r 6 1r 2 3 1r 2 6r 6 126r 2 4r 3 2 1r 4 41r 1 66r 6 2r 2 3 2 7r 6 124r 2 4r 3 2 1r 4 41r 1 68r 6 2r 2 3 2 6r 6 124r 2 4r 3 2 6 4 40r 1 70r 6 2r 2 4r 3 2 6 4 40r 6 1 70r 6 2r 2 3 2 6r 6 122r 2 5r 3 2 4 40r 6 1 71r 6 1r 2 3 2 6r 6 121r 2 5r 3 2 6 4 40r 1 71r 6 3r 2 3 2 6r 6 120r 2 5r 3 2 4 40r 1 71r 6 4r 2 3 1r 2 6r 6 118r 2 5r 3 2 6 4 39r 1 71r 6 6r 2 3 2 6r 6 118r 2 5r 3 2 4 39r 6 1 71r 6 1r 5 3r 6 1r 3 1r 2 6r 6 116r 2 6r 3 6 4 39r 1 71r 6 1r 5 5r 6 2 3 2 7r 6 115r 2 5r 3 2 4 39r 6 1 71r 6 1r 5 5r 6 1r 2 6r 6 114r 2 6r 3 2 4 39r 6 1 71r 6 5 7r 6 2 3 2 7r 6 113r 2 5r 3 1r 6 4 39r 1 71r 6 1r 5 7r 6 2 3 1r 2 6r 6 112r 2 6r 3 2 4 39r 6 1 71r 6 5 9r 6 3 1r 2 7r 6 111r 2 5r 3 1r 2 4 39r 6 1 70r 6 1r 5 9r 6 2 3 2 7r 6 110r 2 6r 3 1r 6 4 40r 1 70r 6 1r 5 10r 2 3 2 8r 6 109r 2 6r 3 2 6 4 40r 1 69r 6 1r 5 11r 6 2 9r 6 108r 2

6r 3 1r 2 4 41r 1 69r 6 1r 5 11r 6 2 9r 6 108r 2 6r 3 2 6 4
42r 1 68r 6 5 13r 2 10r 6 111r 2 2r 3 2 6 1r 4 41r 1 67r 6 5
14r 6 2 9r 6 107r 1 3r 6 5r 4 43r 1 66r 6 5 14r 6 2 9r 6 107r 1
7r 6 1r 4 43r 1 65r 6 5 15r 6 2 10r 6 105r 1 7r 3 1 6 4 43r 6
1 64r 6 5 16r 6 2 9r 6 105r 1 7r 3 1 4 45r 1 64r 5 17r 6 2 9r 6
104r 1 10r 4 45r 6 1 62r 6 5 17r 6 2 2r 6 1 6r 6 103r 1 10r 4
45r 6 1 62r 6 5 17r 6 1r 1 9r 6 103r 1 10r 4 46r 6 1 60r 5 19r 6
1r 1 9r 6 102r 1 11r 4 46r 6 1 60r 5 19r 6 1r 1 10r 6 101r 1
11r 4 47r 6 1 58r 5 20r 6 1r 1 10r 6 101r 1 11r 4 47r 6 1 57r 5
21r 6 1r 1 10r 6 100r 1 12r 4 48r 6 1 55r 5 22r 6 1r 1 10r 6
100r 1 12r 4 49r 6 1 53r 5 23r 6 1r 1 11r 6 98r 1 12r 6 4 49r 6
1 52r 6 5 23r 6 1r 1 11r 6 98r 1 12r 6 4 50r 6 1 50r 6 5 25r 6
1 11r 6 97r 1 13r 6 4 51r 1 49r 6 5 26r 6 1 11r 6 97r 1 13r 4
52r 6 1 47r 6 5 26r 6 1r 1 11r 6 97r 1 13r 4 53r 6 1 45r 6 5
27r 6 1r 1 3 1 9r 6 96r 1 14r 4 54r 6 1 43r 6 5 28r 6 1 3 1r 1
10r 6 95r 1 13r 6 4 55r 1 42r 6 5 29r 6 1 3 1r 1 10r 6 94r 1
14r 6 4 56r 1 39r 5 32r 6 1 3 1r 1 10r 6 94r 1 14r 6 4 57r 6
1 36r 5 33r 6 1 3 1r 1 10r 6 94r 1 14r 6 4 57r 6 1 24r 6 1 7r 6
2r 5 33r 6 3 2r 1 11r 6 92r 1 15r 4 58r 6 1 7r 6 4r 1 10r 6
2r 1 6r 5 36r 1 3 2r 1 11r 6 92r 1 15r 4 58r 6 1 10r 6 6r 1
6r 6 1r 1 5r 6 5 36r 1 3 2r 1 11r 6 92r 1 15r 4 57r 6 1 15r 6
7r 1 2r 6 1 3r 6 5 37r 6 1 3 1r 1 12r 6 91r 1 16r 4 57r 6 1
21r 6 5r 5 1 1r 5 39r 6 1 3 1r 1 12r 6 91r 1 16r 4 57r 6 1 24r 6
5 44r 6 1 3 1r 1 13r 6 89r 1 17r 6 4 55r 6 1 23r 6 1r 5 45r 1
3 2r 1 13r 6 89r 1 17r 6 4 55r 6 1 22r 6 5 46r 6 1 3 1r 1 14r 6
89r 1 17r 6 4 54r 6 1 22r 5 48r 6 1 3 1r 1 14r 6 88r 1 19r 4
54r 6 1 20r 5 50r 6 1 3 1 15r 6 88r 1 19r 4 53r 6 1 20r 5 51r 6
1 17r 6 88r 1 19r 4 52r 6 1r 1 19r 5 51r 6 1 18r 6 88r 1 19r 6
4 51r 6 1 19r 6 5 51r 6 1 18r 6 87r 1 20r 6 4 50r 6 1 20r 5
52r 6 1 19r 6 86r 1 20r 6 4 50r 6 1 19r 6 5 51r 6 1 20r 6 86r 1
21r 4 50r 6 1 19r 5 52r 6 1 20r 6 85r 1 22r 4 49r 6 1 19r 6
5 52r 6 1 20r 6 85r 1 22r 6 4 48r 6 1 18r 6 5 52r 6 1 21r 6
85r 1 22r 6 4 47r 6 1 20r 5 52r 6 1 21r 6 84r 1 24r 4 47r 6
1 20r 6 5 50r 6 1 23r 6 83r 1 24r 6 4 46r 6 1 20r 6 5 50r 6
1 23r 6 83r 1 21r 3 1r 1 6 4 46r 1 22r 5 50r 6 1 23r 6 82r 1
22r 3 2r 1 4 45r 6 1 22r 5 49r 6 1 24r 6 82r 1 22r 3 2r 1 6
4 44r 6 1 5r 3 7r 1 8r 5 49r 6 1 24r 6 82r 1 22r 3 3r 1 4 44r 6
1 4r 3 9r 1 7r 6 5 48r 6 1 24r 6 82r 1 23r 3 2r 1 6 4 43r 6
1 3r 3 11r 1 6r 6 5 47r 6 1 25r 6 82r 1 23r 3 3r 1 4 43r 6 1
3r 3 12r 1 5r 6 5 47r 6 1 25r 6 82r 1 24r 3 2r 1 6 4 42r 6 1
2r 3 13r 1 5r 6 5 46r 6 1 27r 6 81r 1 25r 3 2r 1 4 41r 6 1 3r 3
14r 1 4r 6 5 46r 6 1 27r 6 81r 1 26r 3 1r 1 6 4 40r 6 1 3r 3
14r 1 4r 6 5 45r 6 1 28r 6 81r 1 26r 3 1r 1 6 4 40r 6 1 3r 3
14r 1 4r 6 5 44r 6 1 29r 6 81r 1 27r 3 1r 1 4 40r 6 1 3r 3 15r 1
3r 6 5 43r 6 1r 1 3 1r 1 26r 6 81r 1 30r 6 4 39r 6 1 3r 3 15r 1
3r 6 5 42r 6 1r 1 3 2r 1 26r 6 81r 1 31r 4 38r 6 1 3r 3 17r 1
2r 6 5 42r 6 1 3 3r 1 26r 6 81r 1 31r 6 4 37r 6 1 3r 3 17r 1
3r 5 41r 6 1 1r 3 2r 1 27r 6 81r 1 32r 4 37r 6 1 3r 3 17r 1
3r 5 41r 6 1 3 2r 1 28r 6 81r 1 32r 6 4 35r 6 1r 1 3r 3 18r 1
2r 5 40r 6 1 3 2r 1 28r 6 83r 1 32r 6 4 34r 6 1 4r 3 18r 1 2r 6
5 38r 6 1 1r 3 1r 1 29r 6 83r 1 32r 6 1r 4 33r 6 1 4r 3 18r 1
2r 6 5 37r 6 1r 1 3 1r 1 30r 6 83r 1 33r 6 1r 4 31r 6 1r 1 2r 3
20r 1 2r 6 5 37r 6 1 34r 6 83r 1 34r 6 1r 4 30r 6 1 3r 3 20r 1
2r 6 5 36r 6 1 34r 6 85r 1 34r 6 4 29r 6 1r 1 5r 3 18r 1 3r 6
5 34r 6 1 35r 6 85r 1 35r 6 1r 4 26r 6 1r 1 5r 3 19r 1 4r 6
5 31r 6 1r 1 35r 6 86r 1 36r 6 1r 4 24r 6 1r 1 4r 3 21r 1 4r 6
5 30r 6 1r 1 36r 6 87r 1 36r 6 1r 4 23r 6 1 5r 3 22r 1 4r 6
2r 5 26r 6 1r 1 36r 6 88r 1 37r 6 1r 4 20r 6 2r 1 4r 3 23r 1
5r 6 2r 5 24r 6 1r 1 36r 6 90r 1 32r 3 3r 1 1r 6 1r 4 17r 6
2r 1 2r 3 1 3 25r 1 6r 6 2r 5 20r 6 2r 1 37r 6 91r 1 31r 3 4r 1
1r 6 2r 4 13r 6 3r 1 2r 3 1 1r 3 25r 1 7r 6 3r 5 16r 6 2r 1
38r 6 93r 1 31r 3 4r 1 2r 6 2r 4 9r 6 3r 1 3r 3 1r 1 3 26r 1
9r 6 5r 5 8r 6 4r 1 39r 6 95r 1 32r 3 2r 1 5r 6 12r 1 3r 3 30r 1
12r 6 13r 1 41r 6 97r 1 34r 3 1 6r 6 7r 1 5r 3 4r 1 3 25r 1
10r 3 1 6r 6 2r 1 45r 6 99r 1 53r 3 4r 1 3r 3 24r 1 6r 3 1r 1
1r 3 4r 1 50r 6 102r 1 50r 3 5r 1 4r 3 21r 1 10r 3 17r 1 37r 6
106r 1 48r 3 3r 1 8r 3 17r 1 15r 3 14r 1 35r 6 110r 1 46r 3
2r 1 13r 3 8r 1 1r 3 2r 1 20r 3 1 42r 6 114r 1 138r 6 118r 1
133r 6 124r 1 127r 6 130r 1 121r 6 137r 1 55r 6 9r 1 47r 6 145r 1
48r 6 16r 1 37r 6 156r 1 36r 6 32r 1 20r 6 172r 1 10r 6 60r 1
2r 6 32712r 2 6r 6 241r 2 21r 6 229r 2 31r 6 220r 2 61r 6 191r 2
72r 6 180r 2 37r 3 4r 2 1r 3 2 32r 6 174r 2 38r 3 10r 2 33r 6
169r 2 40r 3 11r 2 35r 6 165r 2 42r 3 10r 2 37r 6 161r 2 13r 6
3r 4 9r 6 8r 2 12r 3 2r 2 41r 6 159r 2 12r 6 1r 4 23r 6 7r 2
10r 6 2 38r 6 156r 2 10r 6 2r 4 31r 6 28r 2 25r 6 152r 2 10r 6
1r 4 35r 6 1r 1 31r 6 4r 2 15r 6 150r 2 9r 6 1r 4 37r 6 2r 1
35r 6 2r 2 13r 6 148r 2 9r 6 4 40r 6 1 39r 6 1r 2 13r 6 145r 2
8r 6 1r 4 41r 1 41r 6 2r 2 12r 6 143r 2 8r 6 4 42r 1 44r 6 2r 2
11r 6 141r 2 8r 6 4 42r 1 46r 6 2r 2 11r 6 139r 2 7r 6 4 43r 1
49r 6 2r 2 10r 6 138r 2 6r 6 4 42r 1 52r 6 2r 2 10r 6 136r 2
6r 6 4 42r 1 54r 6 2r 2 10r 6 134r 2 7r 4 41r 1 57r 6 2r 2 9r 6
133r 2 7r 4 41r 1 59r 6 2r 2 9r 6 131r 2 7r 6 4 41r 1 60r 6
2r 2 9r 6 130r 2 6r 6 4 41r 1 62r 6 2r 2 9r 6 128r 2 7r 4 41r 1
64r 6 2r 2 9r 6 126r 2 7r 4 41r 1 66r 6 2r 2 8r 6 126r 2 6r 6
4 40r 1 68r 6 2r 2 8r 6 124r 2 7r 4 40r 1 70r 6 1r 2 9r 6 122r 2
7r 4 40r 1 70r 6 3r 2 3 2 6r 6 122r 2 7r 4 40r 1 69r 6 5r 2
3 2 6r 6 120r 2 7r 4 40r 1 70r 6 5r 2 3 2 7r 6 118r 2 8r 4 40r 1
69r 6 2r 5 3r 6 2 3 2 6r 6 118r 2 5r 3 2 4 39r 6 1 70r 6 1r 5
4r 6 2 3 1r 2 6r 6 116r 2 6r 3 2 4 39r 1 70r 6 1r 5 6r 6 2 3
2 7r 6 115r 2 5r 3 2 6 4 38r 6 1 70r 6 1r 5 6r 6 2 3 1r 2 6r 6
114r 2 6r 3 2 4 39r 1 71r 6 1r 5 7r 6 3 1r 2 7r 6 113r 2 6r 3
2 4 38r 6 1 70r 6 1r 5 9r 2 3 1r 2 6r 6 112r 2 6r 3 2 6 4 38r 6
1 70r 6 1r 5 9r 2 3 1r 2 7r 6 111r 2 6r 3 2 4 39r 6 1 69r 6
1r 5 10r 6 2 3 2 7r 6 110r 2 6r 3 1r 2 4 39r 6 1 69r 6 1r 5
11r 2 3 1r 2 7r 6 109r 2 6r 3 1r 6 4 39r 6 1 69r 6 5 12r 2 3
1r 2 7r 6 108r 2 6r 3 1r 2 4 41r 1 68r 6 1r 5 12r 6 2 3 2 7r 6
108r 2 6r 3 1r 2 4 41r 1 68r 6 5 13r 6 2 3 2 8r 6 110r 2 3r 3
2 6 4 42r 1 67r 5 14r 6 2 10r 6 107r 1 3r 6 2r 2 6 1r 4 42r 1
66r 6 5 15r 6 2 9r 6 107r 1 8r 6 4 43r 1 65r 5 16r 6 2 10r 6
105r 1 7r 3 1r 1 4 43r 1 64r 6 5 16r 6 2 10r 6 105r 1 7r 3 1r 6
4 43r 6 1 63r 6 5 17r 2 9r 6 106r 1 6r 3 2r 6 4 44r 1 63r 5
18r 6 2 2r 6 3r 1 3r 6 103r 1 7r 3 1r 1 6 4 44r 6 1 61r 5 20r 6
1r 1 8r 6 103r 1 7r 3 1r 1 6 4 45r 1 61r 5 20r 1 10r 6 102r 1
8r 3 1r 1 6 4 45r 6 1 59r 5 21r 1 11r 6 101r 1 8r 3 1 1r 6 4
46r 1 58r 5 22r 6 1 10r 6 101r 1 8r 3 1 1r 6 4 46r 6 1 57r 5
22r 6 1 10r 6 100r 1 12r 4 48r 6 1 55r 5 23r 6 1 10r 6 100r 1
12r 4 48r 6 1 54r 5 24r 6 1 11r 6 98r 1 13r 4 49r 6 1 52r 6
5 24r 6 1 11r 6 98r 1 13r 4 50r 6 1 50r 6 5 25r 6 1 11r 6 97r 1
13r 6 4 51r 1 49r 6 5 26r 6 1 11r 6 97r 1 13r 6 4 51r 6 1 47r 6
5 27r 6 1 11r 6 97r 1 13r 4 53r 1 46r 6 5 28r 6 1 12r 6 95r 1
14r 4 54r 1 44r 6 5 29r 6 1 12r 6 95r 1 14r 4 54r 6 1 24r 6
5r 1 11r 6 5 30r 1 13r 6 94r 1 15r 4 56r 1 25r 6 3r 1 9r 5 32r 6
1 13r 6 94r 1 15r 4 56r 6 1 25r 6 1r 1 9r 5 33r 6 1 3 1r 1 10r 6
94r 1 15r 4 57r 1 25r 6 1r 1 6r 6 1r 5 34r 6 1 3 1r 1 11r 6
92r 1 15r 6 4 57r 1 24r 6 3r 1 5r 5 36r 1 3 2r 1 11r 6 92r 1
15r 6 4 57r 6 1 24r 6 1r 1 5r 6 5 35r 6 1 3 2r 1 11r 6 92r 1
15r 6 4 57r 1 19r 6 3r 1 1r 6 1r 1 3r 6 5 37r 6 1 3 1r 1 12r 6
91r 1 16r 6 4 56r 6 1 22r 6 5r 1 1r 5 39r 6 3 2r 1 12r 6 91r 1
16r 6 4 56r 6 1 24r 5 45r 6 3 2r 1 13r 6 89r 1 17r 6 4 55r 6
1 23r 6 5 45r 6 1 3 2r 1 13r 6 89r 1 18r 4 55r 6 1 22r 5 47r 6
1 3 1r 1 14r 6 89r 1 18r 4 54r 6 1r 1 20r 5 49r 6 1 3 1r 1 14r 6
88r 1 19r 4 54r 6 1 20r 5 50r 6 1 3 1r 1 14r 6 88r 1 19r 4 53r 6
1 20r 5 50r 6 1 3 1r 1 15r 6 88r 1 19r 6 4 52r 6 1 19r 5 51r 6
1 3 1r 1 15r 6 88r 1 19r 6 4 51r 6 1 19r 5 52r 6 1 3 1 16r 6
87r 1 21r 4 51r 6 1 18r 6 5 52r 6 1 19r 6 86r 1 21r 4 50r 6
1 19r 5 52r 6 1 20r 6 86r 1 21r 4 50r 6 1 19r 5 52r 6 1 20r 6
85r 1 22r 6 4 48r 6 1 19r 5 53r 6 1 20r 6 85r 1 22r 6 4 48r 6
1 18r 6 5 52r 6 1 21r 6 85r 1 23r 4 47r 6 1 20r 5 52r 6 1 21r 6
84r 1 24r 4 47r 6 1 20r 6 5 50r 6 1 23r 6 83r 1 24r 6 4 46r 6
1 20r 6 5 50r 6 1 23r 6 83r 1 25r 4 46r 6 1 21r 5 49r 6 1r 1
23r 6 82r 1 26r 4 45r 6 1 22r 5 49r 6 1 24r 6 82r 1 23r 3 1
1r 6 4 44r 6 1 6r 3 6r 1 8r 5 49r 6 1 24r 6 82r 1 23r 3 1r 1
1r 4 44r 6 1 5r 3 8r 1 7r 5 48r 6 1r 1 24r 6 82r 1 23r 3 2r 1
6 4 43r 6 1 4r 3 10r 1 6r 5 48r 6 1 25r 6 82r 1 23r 3 3r 1 4
43r 6 1 3r 3 12r 1 5r 5 48r 6 1 26r 6 81r 1 24r 3 2r 1 6 4 42r 6
1 3r 3 12r 1 5r 6 5 46r 6 1 27r 6 81r 1 24r 3 3r 1 4 42r 1 3r 3
13r 1 5r 6 5 46r 6 1 27r 6 81r 1 25r 3 2r 1 6 4 40r 6 1 3r 3
14r 1 4r 6 5 45r 6 1 28r 6 81r 1 26r 3 2r 1 4 40r 6 1 3r 3 14r 1
4r 6 5 44r 6 1r 1 28r 6 81r 1 26r 3 2r 1 6 4 39r 6 1 3r 3 15r 1
3r 6 5 43r 6 1r 1 29r 6 81r 1 27r 3 2r 1 4 39r 6 1 3r 3 15r 1
3r 6 5 42r 6 1r 1 1r 3 1 27r 6 81r 1 29r 3 1 6 4 38r 6 1 2r 3
17r 1 2r 6 5 42r 6 1 1r 3 1r 1 27r 6 81r 1 31r 6 4 37r 6 1 3r 3
17r 1 2r 6 5 41r 6 1r 1 3 2r 1 27r 6 81r 1 32r 6 4 36r 6 1 3r 3
17r 1 3r 5 41r 6 1 3 2r 1 28r 6 81r 1 32r 6 4 36r 6 1 3r 3 17r 1
3r 5 40r 6 1 3 2r 1 29r 6 81r 1 33r 6 4 34r 6 1 4r 3 18r 1 2r 6
5 38r 6 1 3 3r 1 28r 6 83r 1 33r 6 4 33r 6 1 3 1r 1 2r 3 17r 1
2r 6 5 37r 6 1r 1 3 2r 1 29r 6 83r 1 33r 6 1r 4 31r 6 1r 1 3
2r 1 1r 3 16r 1 4r 5 36r 6 1r 1 3 2r 1 30r 6 83r 1 34r 6 1r 4
30r 6 1 1r 3 2r 1 1r 3 16r 1 4r 5 36r 6 1 1r 3 1r 1 30r 6 85r 1
34r 6 1r 4 28r 6 1r 1 1r 3 1r 1 1r 3 18r 1 3 1r 1 6 5 34r 6
1 35r 6 85r 1 35r 6 1r 4 26r 6 1r 1 1r 3 2r 1 1r 3 18r 1 3 2r 1
6 5 31r 6 1r 1 36r 6 85r 1 36r 6 1r 4 24r 6 1r 1 2r 3 1r 1 1r 3
19r 1 1r 3 1r 1 6 5 30r 6 1r 1 36r 6 87r 1 36r 6 1r 4 23r 6
1 2r 3 1r 1 1r 3 20r 1 2r 3 1r 1 6 2r 5 26r 6 1r 1 36r 6 88r 1
38r 6 1r 4 19r 6 1r 1 2r 3 2r 1 3 21r 1 3r 3 1r 1 6 2r 5 24r 6
1r 1 37r 6 89r 1 38r 6 1r 4 16r 6 3r 1 2r 3 26r 1 3r 3 1r 1
1r 6 2r 5 20r 6 2r 1 37r 6 91r 1 32r 3 3r 1 1r 6 2r 4 13r 6
3r 1 2r 3 27r 1 3r 3 2r 1 1r 6 3r 5 16r 6 2r 1 38r 6 93r 1 31r 3
4r 1 2r 6 3r 4 7r 6 4r 1 3r 3 28r 1 4r 3 3r 1 1r 6 4r 5 10r 6
3r 1 39r 6 94r 1 32r 3 4r 1 4r 6 11r 1 4r 3 30r 1 4r 3 4r 1
2r 6 13r 1 41r 6 97r 1 32r 3 3r 1 6r 6 6r 1 5r 3 4r 1 1r 3 24r 1
4r 3 6r 1 4r 6 6r 1 43r 6 99r 1 34r 3 1 18r 3 4r 1 2r 3 24r 1
5r 3 8r 1 51r 6 102r 1 51r 3 4r 1 4r 3 21r 1 8r 3 14r 1 42r 6
106r 1 49r 3 3r 1 7r 3 18r 1 12r 3 13r 1 39r 6 108r 1 64r 3
8r 1 3 3r 1 64r 6 113r 1 139r 6 118r 1 133r 6 124r 1 128r 6
129r 1 62r 6 1r 1 57r 6 135r 1 56r 6 8r 1 49r 6 144r 1 47r 6
16r 1 39r 6 155r 1 36r 6 31r 1 22r 6 170r 1 11r 6 56r 1 6 1r 1
4r 6 32961r 2 18r 6 232r 2 28r 6 223r 2 39r 6 213r 2 69r 6 183r 2
36r 3 2 38r 6 176r 2 37r 3 10r 2 32r 6 171r 2 39r 3 11r 2 34r 6
166r 2 41r 3 11r 2 36r 6 163r 2 13r 6 4r 4 6 4 1r 6 9r 2 10r 3
8r 2 40r 6 159r 2 12r 6 2r 4 20r 6 7r 2 51r 6 157r 2 11r 6 2r 4
30r 6 7r 2 1r 6 14r 2 28r 6 154r 2 10r 6 1r 4 35r 6 36r 2 15r 6
152r 2 9r 6 1r 4 38r 6 8r 1 25r 6 3r 2 14r 6 149r 2 8r 6 1r 4
40r 6 4r 1 31r 6 4r 2 12r 6 147r 2 8r 6 4 42r 6 1r 1 36r 6 4r 2
11r 6 145r 2 7r 6 1r 4 42r 6 1 40r 6 3r 2 11r 6 143r 2 7r 6
4 43r 6 1 42r 6 4r 2 10r 6 141r 2 7r 4 43r 6 1r 1 45r 6 3r 2
10r 6 139r 2 7r 4 43r 6 1 49r 6 2r 2 10r 6 137r 2 7r 4 42r 6
1r 1 52r 6 2r 2 9r 6 135r 2 7r 4 42r 6 1r 1 54r 6 2r 2 9r 6
133r 2 7r 4 42r 6 1r 1 56r 6 2r 2 9r 6 132r 2 6r 6 4 41r 6 1
59r 6 2r 2 9r 6 130r 2 7r 4 41r 6 1 61r 6 2r 2 8r 6 129r 2 7r 4
41r 6 1 64r 6 1r 2 8r 6 127r 2 7r 4 41r 6 1r 1 64r 6 2r 2 8r 6
126r 2 6r 6 4 40r 6 1 67r 6 1r 2 9r 6 124r 2 7r 4 41r 6 1 66r 6
3r 2 8r 6 123r 2 7r 4 41r 6 1 67r 6 4r 2 8r 6 122r 2 7r 4 40r 6
1 67r 6 5r 2 9r 6 120r 2 7r 4 40r 6 1 67r 6 7r 2 8r 6 120r 2
7r 4 40r 6 1 67r 6 1r 5 5r 6 2 8r 6 118r 2 7r 6 4 39r 6 1 67r 6
1r 5 7r 2 3 2 7r 6 116r 2 8r 4 39r 6 1r 1 67r 6 1r 5 7r 6 2
3 2 6r 6 116r 2 7r 6 4 38r 6 1 69r 6 5 9r 2 3 2 7r 6 114r 2
8r 4 38r 6 1 69r 6 1r 5 9r 2 3 1r 2 7r 6 113r 2 8r 4 38r 1 70r 6
1r 5 9r 6 2 3 2 7r 6 112r 2 8r 6 4 38r 6 1 69r 6 1r 5 10r 2
3 1r 2 7r 6 111r 2 8r 4 39r 6 1 69r 6 5 11r 6 3 1r 2 7r 6 110r 2
9r 4 39r 6 1 69r 5 12r 6 2 3 1r 2 7r 6 109r 2 9r 4 39r 6 1r 1
67r 6 5 12r 6 2 3 1r 2 7r 6 108r 2 7r 3 2 6 4 40r 6 1 67r 6
5 12r 6 2 3 1r 2 7r 6 108r 2 6r 3 1r 2 6 4 40r 6 1 67r 5 14r 6
3 1r 2 8r 6 110r 2 3r 3 2 6 1r 4 40r 6 1r 1 65r 6 5 14r 6 2
3 2 8r 6 107r 1 2r 6 1r 1 6 2 1r 6 1r 4 41r 6 1r 1 64r 5 15r 6
2 3 2 8r 6 107r 1 8r 6 1r 4 41r 6 1r 1 63r 6 5 16r 6 2 10r 6
105r 1 7r 3 1r 1 6 4 42r 6 1 63r 5 17r 6 2 10r 6 105r 1 7r 3
1r 1 6 4 42r 6 1 63r 5 17r 6 2 8r 6 106r 1 7r 3 2r 1 6 4 42r 6
1r 1 61r 6 5 18r 2 3r 6 4r 1 1r 6 104r 1 7r 3 2r 1 6 4 43r 6
1 60r 6 5 20r 6 1 9r 6 103r 1 7r 3 1r 1 1r 6 4 43r 6 1r 1 59r 5
20r 6 1 10r 6 102r 1 8r 3 1r 1 6 4 45r 6 1r 1 57r 6 5 20r 6
1 11r 6 101r 1 8r 3 1r 1 6 4 45r 6 1r 1 57r 5 21r 6 1 11r 6
100r 1 9r 3 1r 1 6 4 46r 6 1r 1 55r 5 23r 1 11r 6 100r 1 8r 3
1r 1 1r 6 4 46r 6 1r 1 54r 6 5 22r 6 1 11r 6 100r 1 8r 3 1r 1
1r 6 4 47r 6 1r 1 52r 6 5 23r 6 1 12r 6 98r 1 10r 3 1 1r 4 49r 6
1 51r 6 5 25r 1 12r 6 98r 1 13r 4 49r 6 1r 1 50r 5 26r 1 12r 6
97r 1 14r 4 50r 6 1 49r 6 5 26r 1 12r 6 97r 1 14r 4 51r 6 1
47r 6 5 27r 1 12r 6 97r 1 13r 6 4 51r 6 1r 1 45r 6 5 28r 1 12r 6
96r 1 14r 6 4 52r 6 1r 1 43r 6 5 29r 1 13r 6 95r 1 14r 4 54r 6
1 41r 6 1r 5 29r 6 1 13r 6 94r 1 15r 4 56r 1 38r 6 1r 5 31r 6
1 13r 6 94r 1 15r 4 56r 1 37r 6 5 33r 6 1 13r 6 94r 1 15r 4
56r 6 1 34r 6 1r 5 34r 6 1 14r 6 92r 1 16r 4 57r 1 25r 6 1r 1
6r 5 36r 1 15r 6 92r 1 16r 4 57r 1 25r 6 1r 1 4r 6 5 36r 6 1
3 1r 1 12r 6 91r 1 17r 4 56r 6 1 25r 6 1r 1 3r 6 5 37r 6 1 3
1r 1 12r 6 91r 1 17r 4 56r 6 1 24r 6 3r 1 6 5 39r 6 3 2r 1 13r 6
90r 1 17r 4 56r 6 1 23r 6 2r 5 43r 1 3 2r 1 13r 6 89r 1 18r 4

55r 6 1 23r 6 5 45r 6 1 3 2r 1 13r 6 89r 1 18r 4 55r 6 1 21r 6
5 47r 6 3 2r 1 14r 6 89r 1 18r 4 54r 6 1r 1 20r 6 5 48r 6 3
2r 1 14r 6 88r 1 19r 6 4 53r 6 1 20r 5 49r 6 1 3 2r 1 14r 6
88r 1 19r 6 4 52r 6 1r 1 19r 5 50r 6 1 3 1r 1 15r 6 88r 1 19r 6
4 52r 6 1 19r 5 51r 6 1 3 1r 1 15r 6 88r 1 20r 4 51r 6 1 19r 5
52r 6 1 3 1r 1 15r 6 87r 1 21r 4 51r 6 1 18r 5 52r 6 1 1r 3
1 17r 6 86r 1 21r 4 50r 6 1r 1 18r 5 52r 6 1 1r 3 1 17r 6 86r 1
21r 6 4 49r 6 1 18r 6 5 52r 6 1 20r 6 85r 1 23r 4 48r 6 1r 1
17r 6 5 52r 6 1 21r 6 85r 1 23r 4 48r 6 1 18r 6 5 52r 6 1 21r 6
85r 1 23r 4 47r 6 1 19r 6 5 52r 6 1 22r 6 83r 1 24r 6 4 46r 6
1 20r 5 51r 6 1 23r 6 83r 1 24r 6 4 46r 6 1 20r 6 5 50r 6 1
23r 6 83r 1 25r 4 46r 6 1 20r 6 5 49r 6 1 24r 6 82r 1 26r 6
4 45r 6 1 21r 5 49r 6 1 24r 6 82r 1 26r 6 4 44r 6 1 6r 3 5r 1
9r 5 49r 6 1 24r 6 82r 1 27r 4 44r 6 1 5r 3 8r 1 7r 5 48r 6
1 25r 6 82r 1 24r 3 1 1r 6 4 43r 6 1 4r 3 10r 1 6r 5 48r 6 1
26r 6 81r 1 24r 3 1r 1 1r 4 43r 6 1 3r 3 11r 1 6r 5 47r 6 1r 1
26r 6 81r 1 24r 3 2r 1 6 4 42r 6 1 3r 3 12r 1 5r 5 47r 6 1 27r 6
81r 1 24r 3 3r 1 4 42r 6 1 3r 3 12r 1 5r 6 5 45r 6 1r 1 27r 6
81r 1 25r 3 2r 1 6 4 40r 6 1 3r 3 14r 1 4r 6 5 45r 6 1 28r 6
81r 1 25r 3 3r 1 4 40r 6 1 3r 3 14r 1 4r 6 5 44r 6 1 29r 6 81r 1
26r 3 3r 6 4 39r 6 1 3r 3 15r 1 3r 6 5 43r 6 1r 1 29r 6 81r 1
27r 3 2r 1 4 39r 6 1 3r 3 15r 1 3r 5 43r 6 1r 1 30r 6 81r 1
28r 3 1r 1 6 4 38r 6 1 2r 3 17r 1 2r 6 5 42r 6 1 31r 6 81r 1
29r 3 1r 1 4 37r 6 1 3r 3 17r 1 2r 6 5 41r 6 1r 1 1r 3 1 28r 6
81r 1 32r 6 4 36r 6 1 3r 3 17r 1 2r 6 5 41r 6 1 3 2r 1 28r 6
81r 1 33r 6 4 35r 6 1 3r 3 17r 1 3r 5 40r 6 1 1r 3 1r 1 29r 6
81r 1 33r 6 4 34r 6 1 3 1 2r 3 18r 1 2r 5 39r 6 1 1r 3 2r 1
29r 6 82r 1 33r 6 4 33r 6 1 3 1 3r 3 16r 1 3r 6 5 37r 6 1 1r 3
2r 1 29r 6 83r 1 34r 6 4 31r 6 1r 1 3 1r 1 2r 3 16r 1 2r 3 1
5 36r 6 1r 1 3 2r 1 30r 6 83r 1 34r 6 1r 4 30r 6 1 1r 3 2r 1
1r 3 16r 1 1r 3 1r 1 5 35r 6 1r 1 3 2r 1 31r 6 83r 1 35r 6 1r 4
28r 6 1r 1 3 2r 1 2r 3 16r 1 1r 3 1r 1 6 5 33r 6 1r 1 1r 3 1r 1
31r 6 85r 1 35r 6 1r 4 26r 6 1r 1 1r 3 2r 1 1r 3 17r 1 3 3r 1
5 33r 6 1 36r 6 85r 1 36r 6 1r 4 24r 6 1r 1 1r 3 3r 1 1r 3 17r 1
1r 3 3r 6 5 31r 6 1 36r 6 87r 1 36r 6 2r 4 22r 6 1 2r 3 2r 1
1r 3 18r 1 2r 3 2r 1 6 5 28r 6 1r 1 37r 6 87r 1 38r 6 1r 4 20r 6
1 2r 3 3r 1 3 20r 1 2r 3 2r 1 6 1r 5 25r 6 1r 1 37r 6 89r 1
38r 6 1r 4 18r 6 1 3r 3 25r 1 2r 3 3r 1 6 2r 5 21r 6 2r 1 37r 6
90r 1 35r 3 1r 1 2r 6 1r 4 14r 6 2r 1 2r 3 26r 1 3r 3 3r 1 1r 6
2r 5 17r 6 2r 1 38r 6 92r 1 33r 3 4r 1 1r 6 3r 4 7r 6 4r 1 3r 3
28r 1 3r 3 4r 1 1r 6 4r 5 10r 6 4r 1 39r 6 93r 1 32r 3 4r 1
4r 6 11r 1 4r 3 29r 1 4r 3 4r 1 2r 6 8r 5 1r 6 4r 1 41r 6 95r 1
33r 3 3r 1 6r 6 6r 1 6r 3 3r 1 1r 3 23r 1 5r 3 5r 1 3r 6 9r 1
43r 6 98r 1 33r 3 2r 1 18r 3 3r 1 2r 3 23r 1 6r 3 6r 1 53r 6
102r 1 53r 3 2r 1 4r 3 21r 1 8r 3 8r 1 49r 6 105r 1 61r 3 18r 1
15r 3 2r 1 47r 6 108r 1 64r 3 13r 1 65r 6 112r 1 139r 6 118r 1
133r 6 124r 1 128r 6 129r 1 61r 6 2r 1 57r 6 135r 1 55r 6 9r 1
49r 6 143r 1 48r 6 16r 1 39r 6 155r 1 36r 6 29r 1 24r 6 169r 1
13r 6 54r 1 8r 6 32963r 2 14r 6 235r 2 26r 6 225r 2 36r 6 215r 2
67r 6 185r 2 75r 6 177r 2 37r 3 11r 2 30r 6 172r 2 39r 3 11r 2
33r 6 168r 2 39r 3 12r 2 35r 6 164r 2 15r 6 14r 2 11r 3 11r 2
37r 6 161r 2 12r 6 2r 4 17r 6 8r 2 52r 6 157r 2 12r 6 1r 4 29r 6
7r 2 2r 6 11r 2 30r 6 155r 2 11r 6 1r 4 32r 6 4r 1 25r 6 6r 2
16r 6 152r 2 9r 6 2r 4 35r 6 3r 1 32r 6 3r 2 13r 6 150r 2 8r 6
1r 4 39r 6 2r 1 34r 6 3r 2 12r 6 148r 2 8r 6 4 41r 6 1r 1 38r 6
2r 2 12r 6 145r 2 8r 6 4 43r 6 1 40r 6 1r 2 12r 6 143r 2 7r 6
1r 4 43r 1 44r 6 1r 2 11r 6 141r 2 7r 6 4 43r 1 47r 6 1r 2 11r 6
139r 2 7r 6 4 43r 1 50r 6 1r 2 10r 6 137r 2 7r 4 43r 6 1 52r 6
1r 2 10r 6 135r 2 7r 6 4 42r 6 1 54r 6 1r 2 10r 6 134r 2 6r 6
4 42r 1 57r 6 1r 2 9r 6 133r 2 6r 6 4 42r 1 59r 6 1r 2 9r 6
131r 2 7r 4 42r 1 60r 6 2r 2 9r 6 129r 2 7r 4 42r 1 62r 6 2r 2
9r 6 127r 2 7r 4 42r 1 64r 6 2r 2 9r 6 126r 2 6r 6 4 41r 1 66r 6
2r 2 8r 6 125r 2 7r 4 41r 1 67r 6 3r 2 8r 6 123r 2 7r 6 4 40r 1
67r 6 4r 2 9r 6 122r 2 7r 4 40r 1 66r 6 3r 5 6 2r 2 9r 6 120r 2
7r 6 4 40r 1 66r 6 1r 5 5r 6 2 8r 6 120r 2 7r 4 40r 1 66r 6
2r 5 5r 6 2 9r 6 118r 2 7r 6 4 39r 1 67r 6 1r 5 7r 6 2 9r 6
116r 2 8r 4 38r 6 1 68r 6 1r 5 8r 2 9r 6 116r 2 8r 4 38r 1 69r 6
5 9r 6 2 9r 6 114r 2 8r 6 4 37r 6 1 68r 6 1r 5 10r 2 10r 6 113r 2
8r 4 38r 6 1 68r 6 1r 5 10r 6 2 9r 6 112r 2 8r 6 4 38r 6 1 68r 6
5 12r 2 3 2 8r 6 111r 2 8r 4 39r 1 69r 6 5 12r 2 3 1r 2 7r 6
110r 2 9r 4 39r 1 68r 6 1r 5 12r 6 3 1r 2 7r 6 110r 2 9r 4 39r 1
68r 6 5 13r 6 2 3 1r 2 7r 6 108r 2 9r 4 40r 6 1 67r 6 5 14r 2
3 1r 2 7r 6 108r 2 9r 4 41r 1 67r 6 5 13r 6 2 3 1r 2 8r 6 110r 2
6r 4 41r 1 66r 6 5 15r 6 3 2r 2 7r 6 107r 1 1r 6 3r 2 2r 6 4
42r 1 65r 6 5 15r 6 2 3 1r 2 7r 6 107r 1 8r 6 4 42r 1 65r 5
16r 6 2 3 1r 2 8r 6 105r 1 7r 3 1 1r 4 42r 6 1 63r 6 5 17r 6
3 1r 2 8r 6 105r 1 7r 3 1r 1 4 43r 1 63r 5 18r 6 2 3 2 8r 6
104r 1 7r 3 2r 1 4 43r 6 1 61r 5 20r 2 2r 6 5r 1 1r 6 104r 1
7r 3 1r 1 1r 4 44r 1 61r 5 20r 6 1 10r 6 103r 1 7r 3 1r 1 1r 4
44r 6 1 59r 6 5 20r 6 1 10r 6 102r 1 8r 3 1r 1 1r 4 45r 1 59r 5
21r 6 1 11r 6 101r 1 8r 3 1r 1 1r 4 45r 6 1 57r 5 22r 6 1 11r 6
100r 1 8r 3 2r 1 1r 4 45r 6 1 57r 5 22r 6 1 11r 6 100r 1 8r 3
2r 1 6 4 46r 6 1 55r 5 23r 6 1 11r 6 100r 1 8r 3 2r 1 6 4 47r 6
1 53r 6 5 23r 6 1 12r 6 98r 1 9r 3 2r 1 6 4 48r 1 52r 6 5 24r 6
1 12r 6 98r 1 9r 3 1r 1 1r 6 4 48r 6 1 51r 5 25r 6 1 12r 6 97r 1
10r 3 1r 1 1r 4 50r 1 50r 5 26r 6 1 12r 6 97r 1 10r 3 1r 1 1r 4
50r 6 1 48r 5 27r 6 1 12r 6 96r 1 11r 3 1r 1 1r 4 51r 6 1 46r 5
28r 6 1 12r 6 96r 1 11r 3 1 1r 6 4 52r 1 45r 6 5 28r 6 1 13r 6
95r 1 14r 6 4 53r 1 42r 6 1r 5 29r 6 1 13r 6 94r 1 15r 6 4 54r 6
1 38r 6 5 32r 6 1 13r 6 94r 1 15r 4 56r 1 37r 5 34r 6 1 13r 6
93r 1 16r 4 56r 6 1 34r 6 5 35r 1 15r 6 92r 1 16r 4 56r 6 1
33r 6 5 35r 6 1 15r 6 92r 1 16r 4 56r 6 1 26r 6 1 4r 6 5 36r 6
1 15r 6 91r 1 17r 4 56r 6 1 24r 6 3r 1 1r 6 5 38r 6 1 15r 6
91r 1 17r 4 56r 6 1 24r 6 4r 5 40r 6 1 3 1 14r 6 90r 1 17r 4
56r 6 1 23r 6 2r 5 42r 6 1 3 1r 1 14r 6 89r 1 18r 4 55r 6 1
22r 6 5 46r 6 1 3 1r 1 14r 6 89r 1 18r 4 55r 6 1 21r 6 5 47r 6
3 2r 1 14r 6 89r 1 18r 4 54r 6 1r 1 19r 6 5 49r 1 3 2r 1 14r 6
88r 1 19r 6 4 53r 6 1 19r 5 50r 6 1 3 2r 1 14r 6 88r 1 19r 6
4 53r 6 1 18r 5 51r 6 3 2r 1 15r 6 88r 1 20r 4 52r 6 1 18r 5
52r 6 3 2r 1 15r 6 87r 1 21r 4 51r 6 1 18r 6 5 51r 6 1 3 2r 1
16r 6 86r 1 21r 4 51r 6 1 18r 5 52r 6 1 3 1r 1 17r 6 86r 1 21r 6
4 50r 6 1 17r 6 5 52r 6 1 3 1r 1 17r 6 85r 1 22r 6 4 49r 6 1
18r 6 5 51r 6 1r 1 3 1r 1 17r 6 85r 1 23r 4 48r 6 1r 1 16r 6
1r 5 52r 6 1 1r 3 1 18r 6 85r 1 23r 4 48r 6 1 18r 6 5 52r 6
1 3 1 19r 6 84r 1 24r 6 4 46r 6 1 19r 6 5 51r 6 1 23r 6 83r 1
24r 6 4 46r 6 1 20r 5 51r 6 1 23r 6 83r 1 25r 4 46r 6 1 20r 6
5 49r 6 1r 1 23r 6 82r 1 26r 4 46r 6 1 20r 6 5 49r 6 1 24r 6
82r 1 26r 6 4 45r 6 1 20r 6 5 49r 6 1 24r 6 82r 1 27r 4 44r 6
1 6r 3 5r 1 8r 6 5 48r 6 1r 1 24r 6 82r 1 27r 4 44r 6 1 5r 3
7r 1 7r 6 5 48r 6 1 26r 6 81r 1 27r 6 4 43r 6 1 4r 3 9r 1 7r 5
47r 6 1r 1 26r 6 81r 1 28r 4 43r 6 1 4r 3 10r 1 6r 5 47r 6 1
27r 6 80r 1 26r 3 1 1r 6 4 42r 1 4r 3 12r 1 5r 5 47r 6 1 27r 6
80r 1 25r 3 2r 1 1r 4 41r 6 1 3r 3 13r 1 5r 5 46r 6 1 28r 6
80r 1 26r 3 2r 1 6 4 40r 6 1 3r 3 14r 1 4r 5 45r 6 1r 1 28r 6
80r 1 26r 3 3r 1 4 40r 6 1 3r 3 14r 1 4r 6 5 44r 6 1 29r 6 80r 1
27r 3 3r 6 4 39r 6 1 3r 3 15r 1 3r 5 44r 6 1r 1 29r 6 80r 1
27r 3 3r 1 4 39r 6 1 2r 3 16r 1 3r 5 43r 6 1r 1 30r 6 80r 1
28r 3 2r 1 6 4 37r 6 1 3r 3 17r 1 2r 5 43r 6 1 31r 6 81r 1 28r 3
2r 1 4 37r 6 1 3r 3 17r 1 2r 5 42r 6 1r 1 31r 6 81r 1 29r 3
1r 1 6 4 36r 6 1 2r 3 18r 1 2r 6 5 40r 6 1r 1 32r 6 81r 1 33r 6
4 34r 6 1r 1 3r 3 17r 1 2r 6 5 40r 6 1 33r 6 81r 1 33r 6 4 34r 6
1 4r 3 18r 1 2r 5 39r 6 1 1r 3 1r 1 30r 6 81r 1 34r 6 4 32r 6
1r 1 3 1 3r 3 16r 1 3r 6 5 37r 6 1 1r 3 2r 1 30r 6 82r 1 34r 6
4 31r 6 1 3 2r 1 2r 3 15r 1 3r 3 6 5 36r 6 1 1r 3 2r 1 30r 6
83r 1 35r 6 4 29r 6 1r 1 3 3r 1 1r 3 15r 1 2r 3 1r 1 5 35r 6
1r 1 3 2r 1 31r 6 83r 1 35r 6 1r 4 28r 6 1 1r 3 3r 1 1r 3 15r 1
2r 3 1r 1 6 5 33r 6 1r 1 3 3r 1 31r 6 84r 1 35r 6 1r 4 26r 6
1r 1 3 3r 1 1r 3 16r 1 1r 3 3r 1 5 32r 6 1r 1 1r 3 2r 1 31r 6
85r 1 36r 6 1r 4 24r 6 1r 1 1r 3 3r 1 1r 3 16r 1 2r 3 2r 1 6
5 30r 6 1r 1 2r 3 1 33r 6 85r 1 38r 6 1r 4 21r 6 1r 1 2r 3 2r 1
1r 3 17r 1 3r 3 2r 1 6 5 28r 6 1r 1 37r 6 87r 1 38r 6 1r 4 20r 6
1 2r 3 3r 1 3 19r 1 2r 3 3r 1 6 1r 5 25r 6 1r 1 37r 6 88r 1
39r 6 2r 4 16r 6 1r 1 3r 3 1r 1 1r 3 20r 1 3r 3 2r 1 1r 6 2r 5
21r 6 2r 1 37r 6 90r 1 40r 6 2r 4 13r 6 1r 1 3r 3 2r 1 1r 3
21r 1 3r 3 3r 1 6 3r 5 17r 6 2r 1 39r 6 91r 1 35r 3 2r 1 1r 6
3r 4 2r 6 9r 1 4r 3 1r 1 1r 3 22r 1 3r 3 3r 1 2r 6 4r 5 11r 6
4r 1 39r 6 93r 1 33r 3 4r 1 3r 6 11r 1 5r 3 2r 1 3 23r 1 4r 3
4r 1 2r 6 7r 5 4r 6 3r 1 41r 6 95r 1 32r 3 4r 1 7r 6 4r 1 7r 3
2r 1 2r 3 23r 1 4r 3 4r 1 3r 6 11r 1 43r 6 98r 1 32r 3 3r 1
19r 3 1r 1 3r 3 23r 1 5r 3 5r 1 56r 6 101r 1 33r 3 1r 1 25r 3
21r 1 7r 3 1 1r 3 1 55r 6 104r 1 63r 3 18r 1 65r 6 108r 1 65r 3
13r 1 64r 6 112r 1 139r 6 118r 1 134r 6 123r 1 128r 6 129r 1
61r 6 2r 1 57r 6 135r 1 55r 6 9r 1 49r 6 143r 1 48r 6 16r 1
39r 6 154r 1 37r 6 28r 1 26r 6 168r 1 12r 6 54r 1 9r 6 32964r 2
12r 6 237r 2 24r 6 227r 2 33r 6 218r 2 63r 6 189r 2 72r 6 180r 2
36r 3 11r 2 29r 6 174r 2 38r 3 11r 2 32r 6 169r 2 39r 3 12r 2
34r 6 166r 2 15r 6 10r 2 13r 3 12r 2 36r 6 162r 2 14r 6 1r 4
14r 6 9r 2 52r 6 159r 2 11r 6 2r 4 26r 6 8r 2 7r 6 2r 2 35r 6
156r 2 10r 6 1r 4 35r 6 1r 1 5r 6 7r 1 4r 6 12r 2 16r 6 153r 2
10r 6 1r 4 37r 6 1r 1 29r 6 5r 2 14r 6 150r 2 9r 6 1r 4 40r 6
1 32r 6 4r 2 13r 6 148r 2 8r 6 1r 4 42r 6 1 35r 6 3r 2 12r 6
146r 2 8r 6 4 44r 1 38r 6 3r 2 11r 6 144r 2 8r 6 4 44r 1 42r 6
1r 2 11r 6 142r 2 7r 6 1r 4 43r 1 46r 6 1r 2 10r 6 140r 2 7r 6
4 43r 6 1 48r 6 1r 2 10r 6 138r 2 7r 6 4 43r 1 51r 6 2r 2 9r 6
136r 2 7r 6 4 42r 6 1 53r 6 2r 2 9r 6 135r 2 7r 4 42r 6 1 56r 6
1r 2 9r 6 133r 2 7r 4 42r 1 59r 6 1r 2 9r 6 131r 2 7r 4 42r 1
61r 6 1r 2 9r 6 129r 2 7r 4 42r 1 63r 6 1r 2 9r 6 127r 2 7r 6
4 41r 1 65r 6 1r 2 8r 6 127r 2 7r 4 41r 1 65r 6 2r 2 9r 6 125r 2
7r 4 41r 1 65r 6 4r 2 9r 6 123r 2 7r 6 4 40r 1 65r 6 6r 2 9r 6
122r 2 7r 4 41r 1 64r 6 2r 5 3r 6 2 10r 6 120r 2 7r 6 4 40r 1
64r 6 2r 5 4r 6 1r 2 9r 6 119r 2 8r 4 40r 1 65r 6 1r 5 6r 6
1r 2 9r 6 118r 2 8r 4 39r 1 66r 6 1r 5 7r 6 2 10r 6 116r 2 8r 6
4 38r 6 1 65r 6 1r 5 8r 6 1r 2 9r 6 116r 2 8r 4 38r 6 1 66r 6
1r 5 9r 6 2 10r 6 114r 2 8r 6 4 37r 6 1r 1 66r 6 1r 5 10r 6
2 9r 6 114r 2 8r 4 38r 6 1 67r 6 1r 5 10r 6 2 10r 6 112r 2 9r 4
38r 6 1 67r 6 5 12r 6 2 10r 6 111r 2 8r 6 4 38r 6 1 66r 6 1r 5
12r 6 2 10r 6 110r 2 9r 4 39r 6 1 66r 6 1r 5 12r 6 2 10r 6 110r 2
9r 4 39r 6 1 66r 6 5 14r 6 2 3 2 8r 6 108r 2 9r 6 4 39r 6 1
66r 6 5 14r 6 2 3 2 8r 6 108r 2 9r 6 4 40r 1 66r 6 5 14r 6 2
3 1r 2 8r 6 110r 2 5r 6 1r 4 40r 1 66r 5 16r 6 3 1r 2 8r 6 107r 1
2r 6 3r 2 1r 6 1r 4 40r 6 1 64r 6 5 16r 6 3 2r 2 7r 6 106r 1
9r 6 1r 4 41r 1 64r 6 5 16r 6 2 3 1r 2 8r 6 105r 1 10r 6 4 41r 6
1 62r 6 5 17r 6 2 3 1r 2 8r 6 105r 1 10r 6 4 42r 1 62r 5 19r 6
3 1r 2 8r 6 104r 1 11r 4 43r 6 1 61r 5 19r 6 2 5r 1 5r 6 103r 1
11r 4 44r 1 60r 5 21r 1 11r 6 102r 1 12r 4 44r 6 1 59r 5 21r 1
3 1r 1 8r 6 102r 1 9r 3 1 1r 4 44r 6 1 58r 5 22r 6 1 11r 6 101r 1
9r 3 1 1r 4 45r 6 1 57r 5 22r 6 1 11r 6 100r 1 10r 3 1 1r 4
45r 6 1 56r 5 23r 6 1 11r 6 100r 1 9r 3 1r 1 1r 4 46r 6 1 54r 6
5 23r 6 1 11r 6 99r 1 9r 3 2r 1 1r 4 47r 6 1 53r 5 24r 6 1 12r 6
98r 1 9r 3 2r 1 1r 4 47r 6 1 52r 5 25r 6 1 12r 6 98r 1 9r 3
2r 1 6 4 48r 6 1 50r 5 26r 6 1 12r 6 97r 1 10r 3 2r 1 6 4 49r 1
49r 6 5 26r 6 1 12r 6 97r 1 10r 3 2r 1 6 4 49r 6 1 47r 6 5 27r 6
1 12r 6 96r 1 11r 3 1r 1 1r 4 51r 1 46r 6 5 28r 6 1 12r 6 96r 1
11r 3 1r 1 1r 4 52r 1 45r 5 29r 6 1 13r 6 94r 1 12r 3 1r 1 1r 4
54r 1 41r 6 5 30r 6 1 13r 6 94r 1 12r 3 1r 1 1r 4 54r 6 1 38r 6
5 32r 6 1 13r 6 94r 1 13r 3 1 6 4 54r 6 1 36r 6 5 33r 6 1 14r 6
93r 1 14r 3 1 6 4 55r 6 1 34r 6 5 34r 6 1 15r 6 92r 1 16r 4
56r 6 1 32r 6 1r 5 35r 6 1 15r 6 91r 1 17r 4 56r 6 1 32r 5 37r 6
1 15r 6 91r 1 17r 4 56r 6 1 24r 6 2r 1 2r 6 5 38r 6 1 15r 6
91r 1 17r 4 56r 6 1 24r 6 4r 5 39r 6 1 17r 6 89r 1 18r 4 56r 6
1 23r 6 5 44r 6 1 17r 6 89r 1 18r 4 55r 6 1 22r 6 5 46r 6 1
17r 6 89r 1 18r 4 55r 6 1 20r 5 49r 6 1 3 1 15r 6 88r 1 19r 6
4 54r 6 1 19r 5 49r 6 1 3 1r 1 15r 6 88r 1 19r 6 4 53r 6 1 19r 5
50r 6 1 3 1r 1 15r 6 88r 1 20r 4 53r 6 1 18r 5 51r 6 3 2r 1
15r 6 88r 1 20r 4 52r 6 1 18r 5 51r 6 1 3 2r 1 15r 6 87r 1 21r 6
4 50r 6 1r 1 17r 5 52r 6 1 3 2r 1 16r 6 86r 1 21r 6 4 50r 6
1 17r 6 5 52r 6 3 2r 1 17r 6 85r 1 22r 6 4 50r 6 1 17r 6 5 51r 6
1 3 2r 1 17r 6 85r 1 23r 4 49r 6 1 17r 6 5 52r 6 1 3 2r 1 17r 6
85r 1 23r 4 48r 6 1 17r 6 1r 5 52r 6 1 3 1r 1 18r 6 84r 1 24r 6
4 47r 6 1 17r 6 5 52r 6 1 1r 3 1r 1 19r 6 83r 1 24r 6 4 46r 6
1 19r 6 5 51r 6 1 1r 3 1 20r 6 83r 1 25r 4 46r 6 1 19r 6 5 51r 6
1 3 1r 1 20r 6 83r 1 25r 4 46r 6 1 20r 5 50r 6 1 24r 6 82r 1
26r 6 4 45r 6 1 20r 5 50r 6 1 24r 6 82r 1 26r 6 4 44r 6 1r 1
20r 5 50r 6 1 24r 6 82r 1 27r 4 44r 6 1 7r 3 4r 1 8r 6 5 48r 6
1 25r 6 82r 1 27r 6 4 43r 6 1 5r 3 7r 1 7r 6 5 48r 6 1 26r 6
80r 1 29r 4 43r 6 1 4r 3 9r 1 6r 6 5 47r 6 1 27r 6 80r 1 29r 6
4 42r 1 5r 3 10r 1 6r 5 47r 6 1 27r 6 80r 1 29r 6 4 41r 6 1
4r 3 12r 1 5r 5 46r 6 1r 1 27r 6 80r 1 30r 6 4 40r 6 1 3r 3
13r 1 5r 5 46r 6 1 28r 6 80r 1 26r 3 1r 1 1r 6 4 40r 6 1 3r 3
14r 1 4r 5 45r 6 1r 1 28r 6 80r 1 26r 3 2r 1 1r 4 40r 6 1 3r 3
14r 1 4r 5 45r 6 1 29r 6 80r 1 27r 3 2r 1 6 4 39r 6 1 2r 3 16r 1
3r 5 44r 6 1 30r 6 80r 1 27r 3 3r 1 6 4 38r 6 1 2r 3 16r 1 3r 5
43r 6 1r 1 30r 6 80r 1 28r 3 3r 1 4 37r 6 1 3r 3 16r 1 3r 5
43r 6 1 31r 6 80r 1 28r 3 3r 1 6 4 36r 6 1 3r 3 17r 1 2r 5 42r 6
1 32r 6 81r 1 29r 3 2r 1 4 36r 6 1 2r 3 18r 1 2r 5 41r 6 1r 1
32r 6 81r 1 30r 3 1r 1 6 4 34r 6 1 3r 3 18r 1 2r 6 5 39r 6 1r 1

33r 6 81r 1 31r 3 1 1r 6 4 33r 6 1 4r 3 18r 1 1r 6 5 39r 6 1
34r 6 81r 1 34r 6 1r 4 31r 6 1 1r 3 1 3r 3 17r 1 1r 6 5 38r 6
1 35r 6 82r 1 34r 6 1r 4 30r 6 1 3 1r 1 3r 3 15r 1 4r 6 5 36r 6
1 1r 3 1r 1 31r 6 83r 1 35r 6 4 29r 6 1r 1 3 2r 1 2r 3 15r 1
2r 3 1r 1 5 35r 6 1 1r 3 2r 1 31r 6 83r 1 36r 6 4 28r 6 1 3
3r 1 1r 3 16r 1 1r 3 2r 1 5 34r 6 1 1r 3 3r 1 31r 6 83r 1 36r 6
1r 4 26r 6 1 1r 3 3r 1 1r 3 16r 1 1r 3 3r 6 5 32r 6 1r 1 3 3r 1
31r 6 85r 1 37r 6 1r 4 23r 6 1r 1 1r 3 2r 1 2r 3 16r 1 2r 3
2r 1 6 5 29r 6 2r 1 3 3r 1 32r 6 85r 1 38r 6 1r 4 21r 6 1r 1
2r 3 2r 1 1r 3 17r 1 2r 3 3r 1 6 5 28r 6 1r 1 1r 3 1r 1 33r 6
87r 1 38r 6 2r 4 18r 6 1r 1 2r 3 1r 1 2r 3 19r 1 2r 3 2r 1 6
1r 5 25r 6 2r 1 2r 3 1 33r 6 88r 1 40r 6 1r 4 16r 6 1r 1 3r 3
1r 1 1r 3 20r 1 2r 3 2r 1 2r 6 1r 5 22r 6 1r 1 39r 6 89r 1 40r 6
2r 4 10r 6 4r 1 4r 3 1 2r 3 20r 1 3r 3 2r 1 2r 6 2r 5 18r 6
2r 1 39r 6 91r 1 41r 6 3r 4 2r 6 8r 1 4r 3 1r 1 1r 3 22r 1 3r 3
2r 1 3r 6 3r 5 12r 6 3r 1 40r 6 93r 1 34r 3 3r 1 4r 6 9r 1 10r 3
23r 1 4r 3 3r 1 3r 6 7r 5 4r 6 3r 1 41r 6 95r 1 33r 3 4r 1 24r 3
24r 1 5r 3 1r 1 5r 6 11r 1 43r 6 98r 1 32r 3 4r 1 24r 3 23r 1
68r 6 100r 1 33r 3 3r 1 24r 3 21r 1 67r 6 104r 1 63r 3 18r 1
65r 6 108r 1 75r 3 3r 1 64r 6 112r 1 139r 6 118r 1 134r 6 122r 1
129r 6 129r 1 60r 6 4r 1 56r 6 135r 1 55r 6 9r 1 49r 6 143r 1
47r 6 17r 1 39r 6 154r 1 37r 6 28r 1 26r 6 168r 1 12r 6 54r 1
9r 6 32967r 2 6r 6 242r 2 21r 6 229r 2 31r 6 220r 2 57r 6 194r 2
71r 6 181r 2 36r 3 3r 2 4r 3 2r 2 28r 6 175r 2 37r 3 13r 2 30r 6
171r 2 37r 3 14r 2 33r 6 166r 2 16r 6 8r 2 13r 3 14r 2 35r 6
163r 2 14r 6 1r 4 10r 6 7r 2 57r 6 159r 2 12r 6 2r 4 22r 6 9r 2
10r 6 2 35r 6 157r 2 10r 6 2r 4 29r 6 38r 2 16r 6 154r 2 10r 6
1r 4 35r 6 3r 1 27r 6 5r 2 14r 6 152r 2 9r 6 1r 4 39r 6 1 32r 6
4r 2 12r 6 149r 2 9r 6 1r 4 41r 6 1 34r 6 4r 2 12r 6 146r 2
9r 6 4 42r 6 1 37r 6 3r 2 12r 6 144r 2 8r 6 1r 4 43r 1 41r 6
2r 2 11r 6 142r 2 8r 6 4 43r 1 45r 6 1r 2 11r 6 140r 2 8r 6
4 43r 1 47r 6 2r 2 10r 6 139r 2 7r 6 4 43r 1 49r 6 2r 2 10r 6
137r 2 7r 6 4 42r 6 1 51r 6 2r 2 10r 6 135r 2 7r 4 43r 6 1 53r 6
3r 2 9r 6 133r 2 7r 4 42r 6 1 56r 6 3r 2 9r 6 131r 2 7r 4 42r 6
1 58r 6 3r 2 8r 6 130r 2 7r 6 4 42r 1 60r 6 2r 2 9r 6 129r 2
6r 6 4 42r 1 61r 6 3r 2 9r 6 127r 2 7r 4 42r 1 62r 6 4r 2 9r 6
125r 2 7r 6 4 41r 1 62r 6 6r 2 9r 6 123r 2 8r 4 41r 1 62r 6
2r 5 2r 6 1r 2 10r 6 122r 2 7r 4 41r 1 62r 6 2r 5 5r 6 2 9r 6
121r 2 8r 4 40r 1 63r 6 1r 5 6r 6 1r 2 9r 6 119r 2 8r 4 40r 6
1 63r 6 1r 5 7r 6 2 10r 6 118r 2 8r 4 39r 6 1 64r 6 5 9r 6 2
10r 6 116r 2 8r 6 4 38r 6 1 65r 5 10r 6 2 10r 6 116r 2 8r 4
38r 6 1 65r 6 5 11r 6 2 10r 6 114r 2 9r 4 38r 6 1 65r 6 5 12r 2
10r 6 114r 2 8r 6 4 37r 6 1r 1 65r 6 5 12r 6 2 10r 6 112r 2
9r 4 38r 6 1 66r 6 5 12r 6 2 11r 6 111r 2 9r 4 38r 6 1 66r 6
5 13r 6 2 10r 6 110r 2 9r 6 4 38r 6 1 66r 5 14r 6 2 10r 6 110r 2
9r 6 4 38r 6 1 66r 5 14r 6 1r 2 10r 6 108r 2 10r 6 4 38r 6 1
66r 5 15r 6 2 10r 6 108r 2 9r 6 1r 4 39r 1 65r 6 5 15r 6 1r 2
10r 6 111r 2 4r 6 2r 4 39r 1 65r 6 5 16r 6 2 10r 6 107r 1 2r 6
8r 4 39r 1 65r 5 17r 6 2 3 2 8r 6 106r 1 8r 6 3r 4 40r 1 63r 5
18r 6 2 3 2 9r 6 105r 1 10r 6 4 41r 1 63r 5 18r 6 2 3 1r 2 8r 6
105r 1 10r 6 4 41r 1 62r 5 20r 2 3 1r 2 8r 6 104r 1 11r 6 4
42r 1 61r 5 20r 6 9r 1 2r 6 103r 1 11r 6 4 42r 1 61r 5 20r 6
1 3 1 9r 6 102r 1 12r 6 4 43r 1 59r 5 21r 6 1 3 1r 1 8r 6 102r 1
12r 6 4 43r 1 59r 5 21r 6 1 3 1r 1 9r 6 101r 1 12r 6 4 44r 1
57r 5 22r 6 1 3 1 10r 6 100r 1 13r 6 4 44r 6 1 55r 5 24r 1 12r 6
100r 1 13r 6 4 45r 6 1 54r 5 24r 1 12r 6 99r 1 14r 6 4 46r 1
53r 5 25r 6 1 12r 6 98r 1 9r 3 1r 1 2r 4 47r 6 1 51r 5 26r 6
1 12r 6 97r 1 10r 3 1r 1 2r 4 48r 6 1 49r 6 5 26r 6 1 12r 6
97r 1 10r 3 1r 1 2r 4 49r 1 48r 6 5 27r 6 1 12r 6 97r 1 10r 3
1r 1 1r 6 4 49r 6 1 47r 5 28r 6 1 12r 6 96r 1 11r 3 1r 1 1r 6
4 50r 1 46r 6 5 28r 6 1 13r 6 95r 1 11r 3 2r 1 6 4 51r 1 44r 6
5 29r 6 1 13r 6 94r 1 12r 3 2r 1 6 4 53r 6 1 39r 6 5 31r 1 14r 6
94r 1 12r 3 2r 1 4 53r 6 1 38r 6 5 32r 6 1 14r 6 94r 1 12r 3
2r 1 4 54r 1 37r 5 34r 6 1 14r 6 93r 1 13r 3 2r 1 4 55r 6 1
34r 5 35r 6 1 15r 6 92r 1 14r 3 1 1r 4 55r 6 1 32r 6 5 36r 6
1 15r 6 91r 1 15r 3 1 6 4 55r 6 1 31r 6 5 37r 1 16r 6 91r 1
15r 3 1 6 4 55r 6 1 24r 6 2r 1 1r 6 5 38r 6 1 16r 6 91r 1 17r 6
4 55r 6 1 24r 6 5 43r 6 1 17r 6 89r 1 18r 6 4 55r 6 1 22r 6
5 45r 6 1 17r 6 89r 1 18r 6 4 54r 6 1 22r 6 5 46r 6 1 17r 6
89r 1 18r 6 4 54r 6 1 20r 6 5 48r 6 1 17r 6 88r 1 20r 4 54r 6
1 19r 5 50r 1 18r 6 88r 1 20r 4 53r 6 1 18r 5 51r 6 1 3 1 16r 6
88r 1 20r 6 4 52r 6 1 17r 5 52r 6 3 2r 1 15r 6 87r 1 21r 6 4
51r 6 1 17r 6 5 51r 6 1 3 1r 1 17r 6 86r 1 21r 6 4 50r 6 1r 1
17r 5 52r 6 1 3 1r 1 17r 6 86r 1 22r 6 5 46r 6 1 19r 6 5 50r 6
1 3 1r 1 20r 6 83r 1 25r 4 46r 6 1 19r 6 5 50r 6 1 1r 3 1 21r 6 82r 1
20r 6 82r 1 26r 6 4 45r 6 1 20r 5 50r 6 1 1r 3 1 21r 6 82r 1
27r 4 45r 6 1 20r 5 50r 6 1 1r 3 1 21r 6 82r 1 27r 4 44r 6 1
9r 3 1r 1 9r 5 49r 6 1r 1 24r 6 82r 1 27r 6 4 43r 6 1 7r 3 4r 1
8r 5 49r 6 1 26r 6 80r 1 29r 4 43r 6 1 5r 3 7r 1 7r 6 5 48r 6
1 26r 6 80r 1 29r 4 43r 6 1 5r 3 8r 1 6r 6 5 47r 6 1 27r 6 80r 1
29r 6 4 42r 6 1 4r 3 10r 1 5r 6 5 47r 6 1 27r 6 80r 1 30r 4
42r 1 4r 3 12r 1 4r 6 5 46r 6 1 28r 6 80r 1 30r 6 4 40r 6 1
4r 3 12r 1 4r 6 5 46r 6 1 28r 6 80r 1 31r 4 40r 6 1 3r 3 14r 1
3r 6 5 45r 6 1 29r 6 80r 1 31r 6 4 39r 6 1 3r 3 14r 1 4r 5 45r 6
1 30r 6 79r 1 27r 3 2r 1 1r 4 39r 6 1 2r 3 16r 1 3r 5 44r 6
1 31r 6 79r 1 27r 3 3r 1 6 4 37r 6 1r 1 2r 3 16r 1 3r 5 43r 6
1r 1 31r 6 79r 1 28r 3 3r 1 4 37r 6 1 3r 3 17r 1 2r 5 42r 6
1r 1 32r 6 79r 1 28r 3 4r 6 4 36r 6 1 3r 3 17r 1 2r 5 42r 6
1 33r 6 79r 1 29r 3 3r 1 6 4 34r 6 1r 1 2r 3 18r 1 2r 5 41r 6
1 33r 6 81r 1 29r 3 2r 1 6 4 34r 6 1 3r 3 19r 1 1r 6 5 39r 6
1r 1 33r 6 81r 1 31r 3 1r 1 6 4 32r 6 1r 1 3r 3 19r 1 1r 6 5
38r 6 1r 1 34r 6 81r 1 32r 3 1 1r 6 4 31r 6 1 5r 3 18r 1 2r 5
37r 6 1r 1 35r 6 81r 1 35r 6 1r 4 29r 6 1r 1 5r 3 17r 1 3r 6
5 35r 6 1r 1 36r 6 82r 1 35r 6 1r 4 28r 6 1 1r 3 1r 1 2r 3 16r 1
4r 6 5 35r 6 1 1r 3 1r 1 32r 6 83r 1 36r 6 1r 4 26r 6 1r 1 1r 3
1r 1 2r 3 16r 1 2r 3 1r 1 5 34r 6 1 1r 3 2r 1 32r 6 83r 1 37r 6
1r 4 25r 6 1 2r 3 1r 1 1r 3 17r 1 2r 3 1r 1 6 5 32r 6 1 3 4r 1
32r 6 84r 1 37r 6 1r 4 23r 6 1 2r 3 2r 1 1r 3 17r 1 2r 3 2r 1
6 5 30r 6 1 1r 3 3r 1 32r 6 85r 1 38r 6 2r 4 19r 6 2r 1 2r 3
1r 1 1r 3 19r 1 1r 3 2r 1 1r 6 5 27r 6 1r 1 1r 3 3r 1 32r 6
87r 1 39r 6 1r 4 17r 6 2r 1 3r 3 1 1r 3 20r 1 2r 3 1r 1 1r 6
1r 5 25r 6 1r 1 1r 3 3r 1 33r 6 87r 1 40r 6 2r 4 13r 6 3r 1
3r 3 1r 1 1r 3 20r 1 2r 3 2r 1 1r 6 2r 5 21r 6 2r 1 2r 3 1r 1
34r 6 89r 1 41r 6 2r 4 7r 6 6r 1 4r 3 1 1r 3 22r 1 2r 3 1r 1
3r 6 2r 5 17r 6 2r 1 40r 6 91r 1 42r 6 13r 1 8r 3 23r 1 10r 6
3r 5 12r 6 3r 1 40r 6 93r 1 36r 3 2r 1 4r 6 7r 1 11r 3 24r 1
11r 6 8r 5 3r 6 2r 1 43r 6 94r 1 34r 3 4r 1 23r 3 24r 1 14r 6
10r 1 43r 6 97r 1 33r 3 4r 1 24r 3 23r 1 68r 6 100r 1 33r 3
4r 1 23r 3 22r 1 66r 6 104r 1 33r 3 2r 1 26r 3 18r 1 65r 6 108r 1
76r 3 1r 1 65r 6 112r 1 140r 6 116r 1 135r 6 122r 1 129r 6 129r 1
60r 6 4r 1 56r 6 135r 1 54r 6 11r 1 48r 6 143r 1 47r 6 17r 1
39r 6 155r 1 35r 6 29r 1 25r 6 170r 1 10r 6 55r 1 7r 6 33220r 2
19r 6 231r 2 28r 6 223r 2 40r 6 211r 2 69r 6 183r 2 34r 3 1r 2
8r 3 2r 2 26r 6 177r 2 35r 3 14r 2 30r 6 171r 2 37r 3 14r 2
32r 6 168r 2 38r 3 15r 2 33r 6 164r 2 15r 6 2r 4 5r 6 8r 2 20r 3
1r 2 35r 6 161r 2 13r 6 2r 4 18r 6 8r 2 50r 6 157r 2 11r 6 3r 4
27r 6 7r 1 7r 6 20r 2 17r 6 155r 2 11r 6 1r 4 34r 6 3r 1 20r 6
12r 2 14r 6 152r 2 10r 6 1r 4 37r 6 1r 1 28r 6 8r 2 12r 6 150r 2
9r 6 1r 4 39r 6 1r 1 28r 6 10r 2 11r 6 148r 2 9r 6 1r 4 40r 6
1r 1 29r 6 4r 1 1r 6 3r 2 11r 6 146r 2 8r 6 1r 4 43r 1 30r 6
4r 1 4r 6 1r 2 11r 6 144r 2 8r 6 4 43r 1 34r 6 2r 1 6r 6 1r 2
10r 6 142r 2 8r 6 4 43r 1 46r 6 1r 2 10r 6 140r 2 8r 6 4 42r 6
1 48r 6 2r 2 9r 6 138r 2 8r 6 4 42r 6 1 50r 6 2r 2 9r 6 136r 2
8r 6 4 41r 6 1 54r 6 1r 2 9r 6 134r 2 8r 4 42r 6 1 56r 6 1r 2
9r 6 132r 2 8r 4 42r 6 1 58r 6 1r 2 9r 6 131r 2 7r 4 42r 6 1
60r 6 1r 2 9r 6 129r 2 7r 4 42r 1 62r 6 2r 2 9r 6 127r 2 7r 6
4 41r 1 61r 6 5r 2 9r 6 125r 2 8r 4 41r 1 61r 6 6r 2 10r 6 123r 2
8r 4 42r 1 60r 6 2r 5 3r 6 1r 2 10r 6 122r 2 7r 6 4 41r 1 61r 6
5 7r 6 2 9r 6 121r 2 8r 4 41r 1 61r 6 1r 5 7r 6 2 10r 6 120r 2
7r 6 4 40r 1 62r 6 5 9r 6 2 10r 6 118r 2 8r 4 39r 6 1 63r 6
5 9r 6 2 10r 6 117r 2 9r 4 38r 6 1 64r 6 5 10r 6 2 10r 6 116r 2
8r 4 39r 1 65r 6 5 10r 6 1r 2 10r 6 114r 2 9r 4 38r 6 1 65r 6
5 11r 6 2 10r 6 114r 2 8r 6 4 37r 6 1 66r 6 5 12r 6 2 10r 6
112r 2 9r 4 38r 6 1 66r 6 5 12r 6 2 11r 6 111r 2 9r 4 38r 6
1 66r 5 14r 6 2 10r 6 110r 2 10r 4 38r 6 1 65r 6 5 14r 6 2 11r 6
109r 2 9r 6 4 38r 6 1 65r 6 5 14r 6 2 11r 6 108r 2 10r 6 4 38r 6
1 65r 6 5 15r 6 2 10r 6 109r 2 8r 6 1r 4 38r 6 1 65r 5 16r 6
1r 2 10r 6 111r 2 4r 6 1r 4 40r 1 64r 6 5 16r 6 1r 2 10r 6 107r 1
3r 6 6r 4 40r 1 64r 6 5 17r 2 12r 6 105r 1 8r 6 2r 4 41r 1 63r 5
18r 6 2 11r 6 105r 1 10r 6 4 41r 1 62r 6 5 18r 6 2 11r 6 105r 1
10r 6 4 41r 6 1 61r 5 20r 2 8r 6 107r 1 11r 6 4 42r 6 1 59r 6
5 20r 6 116r 1 11r 6 4 42r 6 1 59r 5 21r 6 1r 3 6 1 8r 6 102r 1
12r 6 4 43r 1 58r 5 22r 6 1 3 1r 1 9r 6 101r 1 12r 6 4 43r 6
1 57r 5 22r 6 1 3 1r 1 9r 6 100r 1 13r 6 4 44r 1 56r 5 23r 6
1 3 1r 1 9r 6 100r 1 13r 4 45r 6 1 55r 5 23r 6 1 3 1r 1 9r 6
100r 1 13r 4 46r 1 54r 6 5 23r 6 1 3 1 10r 6 99r 1 14r 4 46r 6
1 52r 6 5 24r 6 1 3 1 11r 6 98r 1 14r 4 47r 6 1 50r 6 5 26r 1
13r 6 97r 1 15r 4 48r 6 1 49r 5 27r 1 13r 6 97r 1 15r 4 48r 6
1 48r 5 28r 1 13r 6 97r 1 15r 4 49r 6 1 46r 6 5 28r 1 13r 6
96r 1 16r 4 50r 1 45r 6 5 29r 1 14r 6 95r 1 12r 3 1 2r 4 51r 6
1 4r 6 2r 1 34r 6 5 29r 6 1 14r 6 94r 1 12r 3 1r 1 2r 4 52r 6
8r 1 31r 6 5 31r 6 1 14r 6 94r 1 12r 3 1r 1 1r 6 4 53r 1 2r 6
5r 1 29r 6 5 32r 6 1 14r 6 93r 1 13r 3 2r 1 6 4 53r 6 1 2r 6
6r 1 25r 6 5 34r 6 1 14r 6 93r 1 13r 3 2r 1 6 4 54r 6 1 1r 6
3r 1 3r 6 5r 1 17r 6 5 35r 6 1 15r 6 92r 1 13r 3 2r 1 4 55r 6
1 1r 6 2r 1 4r 6 9r 1 12r 6 5 36r 1 16r 6 91r 1 14r 3 2r 1 4
56r 1 11r 6 3r 1 2r 6 1 11r 5 37r 6 1 16r 6 91r 1 15r 3 1r 1
4 55r 6 1 24r 6 2r 1 1r 6 5 38r 6 1 16r 6 91r 1 15r 3 1r 1 4
55r 6 1 24r 6 2r 5 41r 6 1 17r 6 89r 1 16r 3 1r 1 4 55r 6 1
22r 6 5 45r 6 1 17r 6 89r 1 17r 3 1 4 55r 6 1 20r 6 5 47r 6
1 17r 6 89r 1 17r 3 1 6 4 53r 6 1 20r 5 49r 6 1 17r 6 88r 1
20r 6 4 53r 6 1 19r 5 49r 6 1 18r 6 88r 1 20r 6 4 52r 6 1 18r 5
51r 6 1 18r 6 88r 1 20r 6 4 52r 6 1 17r 5 52r 6 1 19r 6 86r 1
22r 4 51r 6 1 17r 5 52r 6 1 20r 6 86r 1 22r 4 50r 6 1r 1 17r 5
52r 6 1 3 1r 1 17r 6 86r 1 22r 6 4 49r 6 1 17r 6 5 52r 6 3 2r 1
17r 6 85r 1 23r 6 4 48r 6 1r 1 17r 5 52r 6 1 3 2r 1 17r 6 85r 1
23r 6 4 48r 6 1 15r 6 2r 5 52r 6 1 3 1r 1 18r 6 85r 1 24r 4
47r 6 1 17r 6 1r 5 51r 6 1 3 2r 1 19r 6 83r 1 25r 4 47r 6 1
17r 6 5 52r 6 1 3 2r 1 19r 6 83r 1 25r 4 46r 6 1 19r 6 5 51r 6
3 2r 1 20r 6 83r 1 25r 6 4 45r 6 1 19r 6 5 50r 6 1 3 2r 1 20r 6
82r 1 27r 4 45r 6 1 20r 5 50r 6 1 3 2r 1 20r 6 82r 1 27r 4 45r 6
1 20r 5 50r 6 1 3 1r 1 21r 6 82r 1 27r 6 4 44r 1 9r 3 1r 1 9r 5
49r 6 1 1r 3 1 23r 6 81r 1 28r 4 43r 6 1 8r 3 3r 1 8r 5 49r 6
1 1r 3 1 23r 6 80r 1 29r 4 43r 6 1 6r 3 6r 1 7r 6 5 47r 6 1r 1
26r 6 80r 1 29r 6 4 42r 6 1 5r 3 8r 1 6r 6 5 47r 6 1 27r 6 80r 1
30r 4 42r 6 1 4r 3 10r 1 5r 6 5 47r 6 1 27r 6 80r 1 30r 4 42r 6
1 4r 3 11r 1 4r 6 5 46r 6 1 28r 6 80r 1 30r 6 4 40r 6 1 4r 3
12r 1 4r 6 5 46r 6 1 28r 6 80r 1 31r 4 40r 6 1 3r 3 14r 1 3r 6
5 45r 6 1 30r 6 79r 1 31r 6 4 39r 6 1 3r 3 14r 1 3r 6 5 44r 6
1r 1 30r 6 79r 1 32r 4 39r 6 1 2r 3 16r 1 3r 5 44r 6 1 31r 6
79r 1 32r 6 4 37r 6 1r 1 2r 3 16r 1 3r 5 43r 6 1 32r 6 79r 1
28r 3 2r 1 1r 6 4 36r 6 1 3r 3 17r 1 2r 5 42r 6 1r 1 32r 6 79r 1
29r 3 3r 1 6 4 35r 6 1 3r 3 17r 1 2r 5 42r 6 1 33r 6 79r 1 29r 3
3r 1 6 4 34r 6 1 3r 3 18r 1 2r 5 41r 6 1 34r 6 80r 1 29r 3 3r 1
6 4 33r 6 1 3r 3 19r 1 1r 6 5 39r 6 1r 1 34r 6 80r 1 30r 3 3r 1
6 4 31r 6 1r 1 2r 3 20r 1 1r 6 5 38r 6 1r 1 34r 6 81r 1 31r 3
2r 1 6 4 31r 6 1 4r 3 19r 1 2r 5 37r 6 1r 1 35r 6 81r 1 33r 3
1r 1 6 4 29r 6 1r 1 4r 3 19r 1 2r 6 5 35r 6 1r 1 36r 6 82r 1
33r 3 1 1r 6 4 28r 6 1 5r 3 18r 1 3r 6 5 34r 6 1r 1 37r 6 82r 1
37r 6 4 26r 6 1r 1 5r 3 18r 1 4r 5 34r 6 1 37r 6 83r 1 38r 6
4 24r 6 1r 1 5r 3 19r 1 1r 3 1r 1 6 5 31r 6 1r 1 1r 3 2r 1 33r 6
84r 1 38r 6 1r 4 22r 6 1 5r 3 20r 1 1r 3 1r 1 1r 6 5 29r 6 1r 1
3 4r 1 32r 6 85r 1 39r 6 1r 4 19r 6 1r 1 4r 3 23r 1 3 1r 1 2r 6
5 27r 6 1r 1 3 4r 1 32r 6 86r 1 40r 6 2r 4 16r 6 2r 1 4r 3 23r 1
1r 3 1 3r 6 5 25r 6 1r 1 3 4r 1 33r 6 87r 1 41r 6 1r 4 12r 6
4r 1 4r 3 24r 1 1r 3 1 4r 6 2r 5 20r 6 1r 1 2r 3 3r 1 33r 6
89r 1 41r 6 3r 4 2r 6 9r 1 5r 3 26r 1 3 1r 1 4r 6 4r 5 15r 6
2r 1 2r 3 2r 1 34r 6 90r 1 44r 6 12r 1 6r 3 26r 1 10r 6 2r 5
12r 6 2r 1 4r 3 1r 1 35r 6 91r 1 46r 6 4r 1 12r 3 26r 1 11r 6
8r 5 2r 6 2r 1 43r 6 94r 1 36r 3 3r 1 21r 3 26r 1 13r 6 10r 1
44r 6 96r 1 35r 3 3r 1 22r 3 24r 1 68r 6 100r 1 33r 3 5r 1 22r 3
22r 1 66r 6 104r 1 32r 3 4r 1 26r 3 17r 1 66r 6 107r 1 144r 6
112r 1 140r 6 116r 1 135r 6 122r 1 130r 6 127r 1 61r 6 4r 1
56r 6 135r 1 54r 6 11r 1 48r 6 143r 1 47r 6 17r 1 38r 6 156r 1
34r 6 30r 1 26r 6 169r 1 10r 6 55r 1 7r 6 33223r 2 14r 6 235r 2
24r 6 227r 2 34r 6 217r 2 64r 6 187r 2 46r 3 2 25r 6 179r 2
34r 3 14r 2 28r 6 174r 2 36r 3 14r 2 31r 6 170r 2 4r 3 2 31r 3
15r 2 32r 6 166r 2 4r 3 2r 2 8r 6 12r 2 11r 3 2 7r 3 4r 2 34r 6
163r 2 4r 3 3r 2 3r 6 4r 4 13r 6 6r 2 54r 6 159r 2 4r 3 3r 2
2r 6 3r 4 26r 6 20r 2 7r 6 4r 2 20r 6 156r 2 4r 3 2r 2 2r 6
2r 4 32r 6 5r 1 3r 6 8r 1 4r 6 2r 1 1r 6 8r 2 14r 6 154r 2 4r 3
2r 2 2r 6 1r 4 36r 6 2r 1 24r 6 10r 2 12r 6 152r 2 4r 3 1r 2

2r 6 1r 4 38r 6 2r 1 24r 6 12r 2 12r 6 148r 2 5r 3 1r 2 2r 6
4 41r 6 1r 1 25r 6 13r 2 2r 3 2 7r 6 146r 2 5r 3 1r 2 1r 6 1r 4
41r 6 1r 1 27r 6 13r 2 2r 3 2 7r 6 144r 2 6r 3 2 1r 6 4 43r 6
1 29r 6 13r 2 11r 6 142r 2 9r 6 4 43r 1 33r 6 7r 1 1r 6 3r 2
10r 6 140r 2 8r 6 4 43r 6 1 36r 6 1 8r 6 2r 2 10r 6 138r 2 8r 6
4 43r 6 1 49r 6 2r 2 9r 6 136r 2 8r 6 4 42r 6 1 53r 6 1r 2 9r 6
134r 2 8r 6 4 42r 6 1 54r 6 2r 2 9r 6 133r 2 7r 6 4 42r 6 1
56r 6 2r 2 9r 6 131r 2 8r 4 42r 6 1 57r 6 3r 2 9r 6 129r 2 8r 4
42r 6 1 58r 6 4r 2 9r 6 127r 2 8r 4 42r 6 1 58r 6 5r 2 10r 6
125r 2 8r 6 4 41r 6 1 58r 6 7r 2 9r 6 125r 2 7r 6 4 41r 6 1
58r 6 1r 5 3r 6 3r 2 9r 6 123r 2 8r 4 41r 1 60r 6 1r 5 5r 6
1r 2 10r 6 121r 2 8r 4 41r 1 60r 6 1r 5 7r 6 1r 2 10r 6 120r 2
8r 4 40r 6 1 60r 6 1r 5 8r 6 2 11r 6 118r 2 8r 4 39r 6 1r 1
61r 6 1r 5 9r 6 2 10r 6 117r 2 9r 4 38r 6 1r 1 62r 6 5 11r 6
2 10r 6 116r 2 8r 6 4 38r 6 1 63r 6 5 11r 6 2 11r 6 114r 2 9r 4
38r 6 1 64r 6 5 12r 6 2 10r 6 114r 2 9r 4 38r 6 1 64r 6 5 12r 6
2 11r 6 112r 2 9r 6 4 37r 6 1 65r 5 14r 6 2 11r 6 111r 2 9r 4
38r 6 1 64r 6 5 14r 6 2 11r 6 110r 2 10r 4 38r 6 1 64r 6 5 15r 6
2 11r 6 109r 2 9r 6 4 38r 6 1 64r 6 5 15r 6 2 11r 6 108r 2 10r 6
4 38r 6 1 64r 5 16r 6 2 11r 6 109r 2 9r 6 4 38r 6 1 64r 5 17r 6
2 11r 6 111r 2 5r 6 1r 4 39r 1 63r 6 5 17r 6 2 11r 6 107r 1
3r 6 7r 4 39r 1 63r 5 18r 6 2 12r 6 105r 1 9r 6 1r 4 40r 6 1
62r 5 19r 2 12r 6 105r 1 11r 4 41r 1 61r 5 20r 6 2 11r 6 105r 1
11r 4 41r 6 1 60r 5 20r 6 1r 2 7r 6 107r 1 12r 4 41r 6 1 60r 5
21r 6 8r 1 2r 6 104r 1 11r 6 4 42r 6 1 58r 5 22r 6 1 11r 6 102r 1
12r 6 4 42r 6 1 57r 6 5 22r 6 1 3 1 10r 6 101r 1 12r 6 4 43r 6
1 56r 5 23r 6 1 3 1 10r 6 100r 1 13r 6 4 43r 6 1 55r 6 5 23r 6
1 3 1r 1 9r 6 100r 1 13r 6 4 44r 6 1 54r 5 24r 6 1 3 1r 1 9r 6
100r 1 13r 6 4 44r 6 1 53r 5 25r 6 1 3 1r 1 9r 6 99r 1 14r 6
4 45r 6 1 51r 6 5 25r 6 1 3 1r 1 10r 6 98r 1 14r 6 4 46r 6 1
49r 6 5 26r 6 1 3 1 11r 6 97r 1 15r 6 4 46r 6 1 49r 6 5 26r 6
1 3 1 11r 6 97r 1 15r 6 4 47r 6 1 47r 6 5 27r 6 1 3 1 11r 6
96r 1 16r 4 49r 6 1 45r 6 5 28r 6 1 14r 6 95r 1 16r 4 50r 1
44r 6 5 29r 6 1 14r 6 95r 1 16r 4 51r 6 1 3r 6 4r 1 32r 6 5
30r 6 1 14r 6 94r 1 17r 4 52r 6 9r 1 30r 6 5 31r 6 1 14r 6 94r 1
17r 4 53r 1 6 7r 1 28r 6 1r 5 32r 6 1 14r 6 93r 1 18r 4 54r 1
6 8r 1 25r 5 35r 6 1 15r 6 92r 1 18r 4 54r 6 6r 1 3r 6 5r 1
17r 5 36r 1 16r 6 92r 1 14r 3 1 1r 6 4 55r 6 5r 1 3r 6 9r 1
11r 6 5 36r 6 1 16r 6 91r 1 15r 3 1r 1 6 4 55r 6 1 6 1r 1 8r 6
2r 1 3r 6 3r 1 6 1 4r 6 5 37r 6 1 16r 6 91r 1 15r 3 1r 1 6 4
55r 6 1 23r 6 2r 1 1r 5 39r 6 1 16r 6 91r 1 15r 3 1r 1 6 4 55r 6
1 22r 6 2r 5 42r 6 1 17r 6 89r 1 16r 3 1r 1 6 4 54r 6 1 22r 6
5 45r 6 1 17r 6 89r 1 16r 3 2r 1 4 54r 6 1 20r 6 5 47r 6 1 17r 6
88r 1 17r 3 2r 1 4 53r 6 1 20r 5 49r 1 18r 6 88r 1 18r 3 1r 1
4 53r 6 1 18r 6 5 49r 6 1 18r 6 88r 1 18r 3 1r 1 4 52r 6 1r 1
17r 6 5 50r 6 1 19r 6 87r 1 19r 3 1 6 4 51r 6 1 17r 5 52r 6
1 19r 6 86r 1 22r 6 4 50r 6 1 17r 5 52r 6 1 20r 6 86r 1 22r 6
4 49r 6 1r 1 16r 6 5 52r 6 1 20r 6 86r 1 23r 4 49r 6 1r 1 16r 5
53r 6 1 20r 6 85r 1 24r 4 48r 6 1r 1 16r 6 5 52r 6 1 3 1r 1
18r 6 85r 1 24r 4 48r 6 1 15r 6 5 54r 6 1 3 1r 1 19r 6 84r 1
24r 4 47r 6 1 17r 5 53r 6 1 3 2r 1 19r 6 83r 1 25r 6 4 46r 6
1 17r 6 5 52r 6 1 3 1r 1 20r 6 83r 1 25r 6 4 45r 6 1 19r 6 5
50r 6 1r 3 2r 1 20r 6 83r 1 26r 4 45r 6 1 19r 6 5 50r 6 1 3
2r 1 20r 6 82r 1 27r 4 45r 6 1 19r 6 5 50r 6 1 3 2r 1 20r 6
82r 1 27r 6 4 44r 6 1 19r 6 5 49r 6 1 3 2r 1 22r 6 81r 1 27r 6
4 44r 6 1 8r 3 1r 1 9r 5 49r 6 1 3 2r 1 22r 6 81r 1 28r 4 43r 6
1 8r 3 3r 1 8r 5 49r 6 1 3 1r 1 23r 6 80r 1 29r 6 4 42r 6 1
6r 3 6r 1 7r 5 48r 6 1 1r 3 1r 1 23r 6 80r 1 29r 6 4 42r 6 1
5r 3 8r 1 6r 6 5 47r 6 1 1r 3 1 24r 6 80r 1 30r 4 42r 6 1 4r 3
10r 1 5r 6 5 47r 6 1 27r 6 80r 1 30r 6 4 41r 6 1 4r 3 11r 1
4r 6 5 46r 6 1 28r 6 80r 1 31r 4 40r 6 1 4r 3 12r 1 4r 6 5 46r 6
1 29r 6 79r 1 31r 6 4 39r 6 1 4r 3 13r 1 3r 6 5 45r 6 1 30r 6
79r 1 31r 6 4 39r 6 1 3r 3 14r 1 3r 6 5 44r 6 1r 1 30r 6 79r 1
32r 6 4 38r 6 1 3r 3 15r 1 2r 6 5 44r 6 1 31r 6 79r 1 32r 6
4 37r 6 1r 1 2r 3 16r 1 2r 6 5 43r 6 1 32r 6 79r 1 33r 6 4 36r 6
1 3r 3 17r 1 1r 6 5 42r 6 1r 1 32r 6 79r 1 30r 3 1r 1 1r 4 36r 6
1 3r 3 17r 1 2r 5 42r 6 1 33r 6 79r 1 30r 3 2r 1 6 4 34r 6 1r 1
2r 3 18r 1 2r 5 41r 6 1 34r 6 79r 1 30r 3 3r 1 6 4 33r 6 1 3r 3
19r 1 1r 6 5 39r 6 1 35r 6 80r 1 29r 3 4r 1 6 4 31r 6 1r 1 2r 3
20r 1 1r 6 5 38r 6 1r 1 35r 6 80r 1 30r 3 3r 1 6 1r 4 30r 6
1 3r 3 20r 1 2r 5 37r 6 1r 1 35r 6 81r 1 32r 3 2r 1 6 1r 4 28r 6
1r 1 3r 3 21r 1 1r 6 5 35r 6 1r 1 36r 6 82r 1 32r 3 2r 1 6 1r 4
27r 6 1 4r 3 21r 1 1r 6 5 34r 6 1r 1 37r 6 82r 1 34r 3 1 1r 6
1r 4 25r 6 1r 1 4r 3 20r 1 3r 6 5 32r 6 1r 1 37r 6 83r 1 38r 6
1r 4 23r 6 1r 1 4r 3 21r 1 3r 6 5 31r 6 1r 1 38r 6 84r 1 38r 6
1r 4 21r 6 1r 1 4r 3 23r 1 3r 6 5 29r 6 1r 1 1r 3 2r 1 33r 6
85r 1 39r 6 2r 4 17r 6 2r 1 4r 3 25r 1 3r 6 5 27r 6 1r 1 3 4r 1
33r 6 85r 1 41r 6 1r 4 14r 6 3r 1 4r 3 26r 1 4r 6 5 25r 6 1
1r 3 4r 1 33r 6 87r 1 41r 6 2r 4 10r 6 4r 1 4r 3 27r 1 5r 6
5 6 5 20r 6 1r 1 1r 3 4r 1 33r 6 88r 1 43r 6 3r 4 2r 6 8r 1
5r 3 27r 1 6r 6 3r 5 16r 6 2r 1 1r 3 4r 1 33r 6 90r 1 44r 6
11r 1 7r 3 27r 1 9r 6 2r 5 12r 6 2r 1 3r 3 2r 1 35r 6 91r 1
63r 3 27r 1 11r 6 7r 5 3r 6 2r 1 4r 3 2r 1 35r 6 93r 1 39r 3
2r 1 20r 3 26r 1 13r 6 10r 1 5r 3 1r 1 36r 6 96r 1 36r 3 3r 1
21r 3 25r 1 68r 6 99r 1 33r 3 6r 1 21r 3 22r 1 67r 6 103r 1
32r 3 5r 1 25r 3 17r 1 66r 6 107r 1 145r 6 111r 1 140r 6 116r 1
135r 6 122r 1 130r 6 127r 1 61r 6 4r 1 56r 6 135r 1 54r 6 11r 1
48r 6 143r 1 46r 6 18r 1 38r 6 155r 1 35r 6 29r 1 27r 6 169r 1
11r 6 53r 1 9r 6 33227r 2 6r 6 240r 2 21r 6 229r 2 30r 6 221r 2
47r 6 1r 2 4r 6 197r 2 70r 6 182r 2 34r 3 1r 2 7r 3 4r 2 26r 6
176r 2 35r 3 15r 2 29r 6 171r 2 37r 3 15r 2 31r 6 168r 2 4r 3
2r 2 9r 6 2r 2 1r 6 1r 2 14r 3 4r 2 2r 3 6r 2 33r 6 164r 2 4r 3
4r 2 3r 6 4r 4 8r 6 7r 2 56r 6 161r 2 4r 3 3r 2 2r 6 3r 4 22r 6
11r 2 3r 6 2 2r 6 1r 2 34r 6 157r 2 4r 3 3r 2 2r 6 1r 4 35r 6
2r 1 4r 6 25r 2 14r 6 155r 2 4r 3 3r 2 2r 6 4 38r 6 1 22r 6
11r 2 13r 6 152r 2 4r 3 3r 2 1r 6 1r 4 39r 6 1 22r 6 13r 2 12r 6
150r 2 4r 3 2r 2 2r 6 4 41r 1 23r 6 15r 2 2r 3 1r 2 6r 6 148r 2
4r 3 2r 2 1r 6 1r 4 42r 1 23r 6 16r 2 2r 3 1r 2 6r 6 146r 2
4r 3 2r 2 1r 6 4 43r 1 24r 6 18r 2 1r 3 1r 2 6r 6 144r 2 4r 3
2r 2 6 4 44r 6 1 27r 6 16r 2 1r 3 1r 2 6r 6 142r 2 4r 3 2r 2
6 4 43r 6 1 33r 6 14r 2 3 2 7r 6 140r 2 5r 3 1r 2 4 44r 1 37r 6
13r 2 9r 6 138r 2 5r 3 1r 2 6 4 42r 1 41r 6 12r 2 9r 6 136r 2
5r 3 1r 2 6 4 42r 1 43r 6 7r 5 1r 6 2r 2 9r 6 134r 2 5r 3 1r 2
6 4 41r 6 1 46r 6 4r 5 5r 6 2 9r 6 132r 2 6r 3 2 6 4 41r 1 49r 6
3r 5 6r 6 2 9r 6 130r 2 9r 4 41r 1 50r 6 3r 5 7r 6 2 9r 6 128r 2
9r 4 41r 1 52r 6 1r 5 9r 6 2 9r 6 126r 2 9r 4 41r 1 53r 6 1r 5
10r 6 2 9r 6 125r 2 8r 6 4 40r 1 55r 6 1r 5 9r 6 2 10r 6 123r 2
8r 6 4 40r 1 56r 6 1r 5 10r 6 2 10r 6 121r 2 8r 6 4 40r 1 58r 6
5 11r 2 11r 6 120r 2 8r 4 40r 1 59r 6 5 11r 6 2 10r 6 119r 2
9r 4 39r 6 1 59r 6 5 12r 6 2 10r 6 117r 2 9r 6 4 38r 6 1 60r 6
5 12r 6 2 11r 6 116r 2 9r 4 38r 6 1 61r 6 5 13r 6 2 11r 6 114r 2
9r 6 4 38r 1 62r 6 5 14r 6 2 10r 6 114r 2 9r 4 38r 6 1 62r 6
5 14r 6 2 11r 6 112r 2 10r 4 38r 1 63r 6 5 15r 2 11r 6 112r 2
9r 6 4 37r 6 1 63r 6 5 15r 6 2 11r 6 110r 2 10r 4 38r 6 1 63r 5
16r 6 2 11r 6 110r 2 10r 4 38r 6 1 63r 5 16r 6 1r 2 11r 6 108r 2
10r 6 4 38r 1 64r 5 17r 6 2 11r 6 108r 2 10r 6 4 38r 1 64r 5
17r 6 2 12r 6 110r 2 7r 6 4 38r 1 63r 6 5 17r 6 1r 2 11r 6 107r 1
2r 6 5r 2 6 1r 4 38r 6 1 62r 5 19r 6 2 12r 6 105r 1 10r 6 1r 4
39r 1 62r 5 19r 6 2 12r 6 105r 1 11r 4 40r 6 1 60r 6 5 19r 6
2 12r 6 105r 1 11r 4 41r 1 60r 5 20r 6 1r 2 6r 6 109r 1 12r 4
41r 6 1 58r 6 5 21r 6 2 6 8r 1 1r 6 104r 1 12r 4 42r 1 58r 5
22r 6 1r 1 11r 6 102r 1 13r 4 42r 6 1 56r 6 5 23r 6 1 12r 6
101r 1 13r 4 43r 1 56r 5 24r 6 1 12r 6 100r 1 13r 6 4 43r 6
1 54r 6 5 23r 6 1r 1 3 1 10r 6 100r 1 13r 6 4 44r 1 54r 5 24r 6
1r 1 3 1 10r 6 99r 1 14r 6 4 44r 6 1 52r 6 5 24r 6 1r 3 1r 1
10r 6 99r 1 14r 6 4 45r 6 1 50r 6 5 25r 6 1r 3 2r 1 10r 6 98r 1
14r 6 4 45r 6 1 50r 5 26r 6 1r 3 2r 1 10r 6 97r 1 15r 6 4 46r 6
1 48r 6 5 27r 6 3 1r 1 11r 6 97r 1 15r 6 4 47r 6 1 46r 6 5 28r 6
1 3 1 11r 6 96r 1 16r 6 4 48r 1 46r 5 29r 6 1 3 1 12r 6 95r 1
16r 6 4 49r 1 44r 6 5 29r 6 1 3 1 12r 6 95r 1 16r 6 4 50r 1
4r 6 4r 1 32r 5 31r 6 1 14r 6 94r 1 17r 6 4 50r 6 1 6 8r 1 30r 6
5 31r 6 1 14r 6 94r 1 17r 6 4 51r 6 1 6 8r 1 27r 5 34r 6 1 14r 6
93r 1 18r 4 53r 6 11r 1 23r 5 35r 6 1 16r 6 92r 1 18r 4 54r 6
7r 1 3r 6 4r 1 16r 5 36r 6 1 16r 6 92r 1 18r 4 54r 6 6r 1 5r 6
8r 1 10r 5 37r 6 1 16r 6 91r 1 19r 4 54r 6 5r 1 14r 6 6r 1 3r 5
38r 6 1 16r 6 91r 1 19r 4 55r 6 1 23r 6 1r 5 42r 6 1 17r 6 89r 1
20r 4 55r 6 1 22r 5 45r 6 1 17r 6 89r 1 17r 3 1 1r 4 54r 6 1
22r 5 46r 6 1 17r 6 89r 1 16r 3 2r 1 4 54r 6 1 20r 5 47r 6 1
18r 6 88r 1 17r 3 2r 1 4 53r 6 1 19r 6 5 48r 6 1 18r 6 88r 1
17r 3 2r 1 6 4 52r 6 1 18r 5 50r 6 1 19r 6 87r 1 18r 3 1r 1
6 4 51r 6 1 18r 5 51r 6 1 19r 6 87r 1 18r 3 1r 1 1r 4 51r 6
1 17r 5 51r 6 1 20r 6 86r 1 19r 3 2r 1 4 50r 6 1 17r 5 52r 6
1 20r 6 86r 1 20r 3 1r 1 4 50r 6 1 16r 5 53r 6 1 20r 6 86r 1
21r 3 1 4 49r 6 1r 1 15r 6 5 52r 6 1 21r 6 85r 1 22r 3 1 6 4
47r 6 1r 1 16r 5 53r 6 1 21r 6 85r 1 24r 6 4 46r 6 1r 1 16r 6
5 53r 6 1 22r 6 83r 1 25r 6 4 46r 6 1 17r 5 53r 6 1 1r 3 1 20r 6
83r 1 26r 4 45r 6 1r 1 17r 6 5 52r 6 1 3 1r 1 20r 6 83r 1 26r 4
45r 6 1 19r 5 51r 6 1r 3 2r 1 20r 6 83r 1 26r 4 45r 6 1 19r 6
5 50r 6 1 3 2r 1 20r 6 82r 1 27r 6 4 44r 6 1 19r 6 5 50r 6 3
2r 1 22r 6 81r 1 27r 6 4 44r 6 1 19r 6 5 49r 6 1 3 2r 1 22r 6
81r 1 28r 4 44r 6 1 8r 3 1r 1 8r 6 5 49r 6 1 3 2r 1 22r 6 81r 1
28r 4 43r 6 1 8r 3 1r 1 7r 6 5 48r 6 1 3 2r 1 23r 6 80r 1 29r 6
4 42r 6 1 6r 3 6r 1 7r 5 48r 6 1 3 2r 1 23r 6 80r 1 30r 4 42r 6
1 5r 3 8r 1 6r 5 48r 6 1 3 1r 1 24r 6 80r 1 30r 6 4 41r 6 1
4r 3 10r 1 5r 5 47r 6 1r 1 3 1r 1 24r 6 80r 1 31r 4 40r 6 1
5r 3 11r 1 4r 6 5 46r 6 1 1r 3 1 26r 6 79r 1 31r 6 4 39r 6 1
4r 3 12r 1 4r 6 5 45r 6 1r 1 29r 6 79r 1 32r 4 39r 6 1 3r 3 14r 1 3r 6
13r 1 3r 6 5 45r 6 1 30r 6 79r 1 32r 4 39r 6 1 3r 3 14r 1 3r 6
5 44r 6 1 31r 6 79r 1 32r 6 4 38r 6 1 3r 3 15r 1 2r 6 5 43r 6
1r 1 31r 6 79r 1 33r 4 37r 6 1 3r 3 16r 1 2r 6 5 43r 6 1 32r 6
79r 1 33r 6 4 36r 6 1 3r 3 17r 1 1r 6 5 42r 6 1 33r 6 79r 1
34r 6 4 35r 6 1 3r 3 17r 1 2r 5 41r 6 1r 1 33r 6 79r 1 34r 6
1r 4 33r 6 1 3r 3 18r 1 2r 5 41r 6 1 34r 6 79r 1 30r 3 3r 1
6 4 33r 6 1 3r 3 19r 1 1r 6 5 39r 6 1 35r 6 80r 1 30r 3 3r 1
6 4 31r 6 1r 1 2r 3 20r 1 1r 6 5 37r 6 1r 1 36r 6 80r 1 30r 3
4r 1 6 4 30r 6 1 3r 3 20r 1 2r 5 36r 6 2r 1 36r 6 80r 1 31r 3
3r 1 1r 6 4 28r 6 1r 1 2r 3 22r 1 1r 6 5 35r 6 1r 1 36r 6 81r 1
33r 3 2r 1 6 1r 4 27r 6 1 3r 3 22r 1 1r 6 5 34r 6 1r 1 37r 6
82r 1 33r 3 2r 1 6 1r 4 25r 6 1r 1 2r 3 23r 1 2r 6 5 32r 6 1r 1
38r 6 82r 1 35r 3 1 1r 6 1r 4 23r 6 1r 1 3r 3 24r 1 2r 6 5 30r 6
1r 1 38r 6 83r 1 39r 6 1r 4 21r 6 1r 1 3r 3 25r 1 2r 6 5 28r 6
2r 1 38r 6 85r 1 40r 6 1r 4 18r 6 1r 1 4r 3 25r 1 3r 6 5 26r 6
2r 1 3 3r 1 34r 6 85r 1 41r 6 2r 4 15r 6 1r 1 4r 3 26r 1 4r 6
5 24r 6 1r 1 1r 3 3r 1 34r 6 87r 1 42r 6 1r 4 9r 6 5r 1 4r 3
27r 1 5r 6 4r 5 17r 6 2r 1 3 5r 1 33r 6 88r 1 43r 6 15r 1 5r 3
27r 1 6r 6 4r 5 15r 6 1r 1 1r 3 5r 1 34r 6 89r 1 45r 6 10r 1
7r 3 27r 1 10r 6 1r 5 12r 6 1r 1 2r 3 5r 1 34r 6 91r 1 63r 3
27r 1 11r 6 7r 5 2r 6 3r 1 3r 3 3r 1 35r 6 93r 1 40r 3 2r 1
19r 3 26r 1 13r 6 10r 1 4r 3 3r 1 35r 6 95r 1 38r 3 3r 1 20r 3
25r 1 28r 3 2r 1 36r 6 98r 1 35r 3 6r 1 20r 3 22r 1 67r 6 102r 1
34r 3 5r 1 24r 3 17r 1 66r 6 106r 1 146r 6 111r 1 140r 6 116r 1
136r 6 121r 1 130r 6 127r 1 61r 6 4r 1 57r 6 134r 1 54r 6 10r 1
50r 6 142r 1 46r 6 18r 1 38r 6 155r 1 34r 6 29r 1 28r 6 169r 1
11r 6 52r 1 12r 6 33475r 2 18r 6 231r 2 28r 6 223r 2 39r 6 212r 2
66r 6 186r 2 45r 3 3r 2 23r 6 179r 2 34r 3 16r 2 27r 6 173r 2
36r 3 15r 2 30r 6 169r 2 4r 3 2r 2 15r 6 2 13r 3 5r 2 1r 3 7r 2
32r 6 166r 2 4r 3 2r 2 6r 6 8r 4 6 8r 2 12r 6 2 5r 3 1r 2 34r 6
162r 2 4r 3 3r 2 2r 6 5r 4 18r 6 9r 2 1r 6 2 44r 6 159r 2 4r 3
2r 2 3r 6 1r 4 33r 6 2r 1 6 27r 2 16r 6 157r 2 3r 3 3r 2 2r 6
1r 4 37r 6 1 3r 6 2r 1 6r 6 3r 1 1r 6 4r 5 5r 6 2r 2 13r 6 154r 2
3r 3 3r 2 2r 6 4 39r 6 1 20r 6 3r 5 8r 6 1r 2 12r 6 151r 2 4r 3
3r 2 1r 6 1r 4 41r 1 20r 6 3r 5 10r 6 1r 2 3r 3 2 6r 6 149r 2
4r 3 3r 2 1r 6 4 43r 1 19r 6 4r 5 12r 6 1r 2 1r 3 1r 2 7r 6
146r 2 4r 3 2r 2 1r 6 4 44r 1 21r 6 3r 5 14r 6 2 1r 3 1r 2 7r 6
144r 2 4r 3 2r 2 1r 4 44r 6 1 22r 6 4r 5 15r 6 2 3 1r 2 7r 6
142r 2 4r 3 2r 2 6 4 44r 6 1 24r 6 4r 5 15r 6 2 3 1r 2 7r 6
140r 2 4r 3 2r 2 6 4 43r 6 1r 1 26r 6 4r 5 15r 6 2 1r 3 2 7r 6
138r 2 5r 3 1r 2 6 4 43r 6 1 30r 6 3r 5 15r 6 2 1r 3 2 7r 6
136r 2 5r 3 1r 2 6 4 43r 6 1 32r 6 4r 5 14r 6 2 10r 6 134r 2
5r 3 2r 2 4 42r 6 1 36r 6 4r 5 13r 6 2 10r 6 132r 2 5r 3 2r 2
4 42r 6 1 39r 6 3r 5 13r 6 2 10r 6 130r 2 6r 3 1r 2 4 41r 6
1r 1 41r 6 3r 5 13r 6 2 10r 6 128r 2 6r 3 1r 2 6 4 40r 6 1 45r 6
3r 5 11r 6 1r 2 10r 6 126r 2 6r 3 1r 2 6 4 40r 6 1 48r 6 2r 5
11r 6 1r 2 10r 6 125r 2 6r 3 2 1r 4 40r 6 1 50r 6 1r 5 12r 6
1r 2 10r 6 123r 2 6r 3 1r 2 4 41r 1 51r 6 1r 5 13r 6 2 11r 6
121r 2 9r 6 4 40r 1 53r 6 5 13r 6 1r 2 10r 6 121r 2 8r 6 4 40r 1
54r 6 1r 5 13r 6 1r 2 10r 6 119r 2 9r 4 40r 6 1 55r 6 1r 5 12r 6
1r 2 11r 6 117r 2 10r 4 39r 6 1 57r 6 5 13r 6 1r 2 11r 6 116r 2
9r 6 4 38r 6 1 58r 6 5 14r 6 2 11r 6 115r 2 10r 4 38r 6 1r 1
58r 6 5 14r 6 1r 2 11r 6 114r 2 9r 6 4 37r 6 1r 1 59r 6 5 15r 6
1r 2 11r 6 112r 2 10r 4 38r 6 1 60r 6 5 15r 6 1r 2 11r 6 112r 2
10r 4 37r 6 1 62r 5 16r 6 2 12r 6 110r 2 10r 6 4 37r 6 1 62r 5
16r 6 1r 2 11r 6 110r 2 10r 6 4 36r 6 1 62r 6 5 16r 6 1r 2 12r 6
108r 2 11r 6 4 36r 6 1 62r 6 5 17r 6 2 12r 6 108r 2 10r 6 4
37r 6 1 62r 5 18r 6 1r 2 12r 6 110r 2 7r 6 4 38r 1 62r 5 18r 6
1r 2 12r 6 107r 1 2r 6 5r 2 6 1r 4 38r 1 61r 6 5 19r 6 2 12r 6

106r 1 10r 6 1r 4 38r 6 1 60r 6 5 19r 6 1r 2 12r 6 105r 1 11r 6 4 39r 1 60r 5 20r 6 1r 2 12r 6 104r 1 12r 6 4 39r 6 1 59r 5 21r 6 1r 2 11r 6 104r 1 12r 6 4 40r 1 58r 6 5 21r 6 118r 1 12r 6 4 40r 6 1 57r 5 23r 6 7r 1 5r 6 102r 1 13r 4 42r 6 1 55r 6 5 23r 6 1r 1 12r 6 101r 1 13r 4 42r 6 1 55r 5 24r 6 1r 1 12r 6 100r 1 14r 4 43r 6 1 53r 6 5 24r 6 1 13r 6 100r 1 13r 6 4 43r 6 1 53r 5 25r 6 1 13r 6 99r 1 14r 6 4 44r 6 1 51r 6 5 25r 6 1 13r 6 99r 1 14r 6 4 45r 1 50r 6 5 27r 6 3 1r 1 11r 6 97r 1 15r 6 4 45r 6 1 49r 5 28r 1 3 1r 1 11r 6 97r 1 15r 6 4 46r 6 1 47r 6 5 28r 1 3 1r 1 11r 6 97r 1 15r 6 4 47r 1 46r 6 5 29r 1 3 1r 1 11r 6 96r 1 16r 6 4 48r 1 44r 6 5 30r 1 3 1r 1 12r 6 95r 1 16r 6 4 49r 1 43r 6 5 30r 1 3 1r 1 12r 6 94r 1 17r 6 4 49r 6 1 5r 6 4r 1 30r 5 31r 6 1 3 1r 1 12r 6 94r 1 17r 6 4 50r 1 2r 6 8r 1 28r 5 32r 6 1 3 1r 1 12r 6 94r 1 17r 6 4 50r 6 1 1r 6 9r 1 26r 5 33r 6 1 3 1 13r 6 93r 1 18r 6 4 51r 6 1 6 11r 1 22r 5 35r 6 1 16r 6 92r 1 18r 6 4 51r 6 9r 1 4r 6 4r 1 14r 6 5 36r 6 1 16r 6 91r 1 19r 6 4 52r 6 8r 1 7r 6 7r 1 8r 5 37r 6 1 16r 6 91r 1 19r 6 4 52r 6 2r 1 6 2r 1 14r 6 7r 1 1r 5 39r 6 1 16r 6 91r 1 19r 6 4 53r 6 1r 1 22r 6 3r 5 40r 6 1 18r 6 89r 1 20r 4 54r 6 1 23r 6 1r 5 42r 6 1 18r 6 89r 1 20r 6 4 54r 6 1 21r 6 5 45r 6 1 18r 6 89r 1 20r 6 4 53r 6 1 20r 5 47r 6 1 18r 6 88r 1 21r 6 4 52r 6 1 19r 5 49r 6 1 18r 6 88r 1 18r 3 1r 1 6 4 52r 6 1 18r 5 50r 6 1 19r 6 87r 1 18r 3 1r 1 1r 4 51r 6 1 18r 5 50r 6 1 20r 6 86r 1 19r 3 2r 1 4 51r 6 1 16r 5 52r 6 1 20r 6 86r 1 19r 3 2r 1 6 4 49r 6 1 4 50r 6 1 16r 6 5 52r 6 1 20r 6 86r 1 19r 3 2r 1 6 4 49r 6 1 16r 5 52r 6 1r 1 20r 6 85r 1 21r 3 1r 1 6 4 48r 6 1r 1 15r 5 53r 6 1 21r 6 85r 1 21r 3 2r 1 4 47r 6 1r 1 16r 5 53r 6 1 21r 6 85r 1 22r 3 1r 1 4 46r 6 1r 1 15r 6 1r 5 52r 6 1r 1 22r 6 83r 1 24r 3 1 4 46r 6 1 17r 6 5 52r 6 1 23r 6 83r 1 24r 3 1 4 45r 6 1r 1 17r 6 5 52r 6 1 23r 6 83r 1 26r 6 4 44r 6 1 18r 6 5 51r 6 1r 1 23r 6 82r 1 27r 6 4 44r 6 1 19r 5 51r 6 1 3 1r 1 21r 6 82r 1 28r 4 44r 6 1 19r 6 5 49r 6 1r 1 3 1r 1 22r 6 81r 1 28r 4 44r 6 1 19r 6 5 49r 6 1 3 2r 1 22r 6 81r 1 28r 4 43r 6 1 9r 3 1r 1 8r 6 5 49r 6 1 3 1r 1 23r 6 80r 1 29r 6 4 42r 6 1 7r 3 4r 1 7r 6 5 48r 6 1 3 2r 1 23r 6 80r 1 30r 4 42r 6 1 6r 3 6r 1 6r 6 5 48r 6 1 3 2r 1 23r 6 80r 1 30r 6 4 41r 6 1 5r 3 8r 1 5r 6 5 47r 6 1 3 2r 1 24r 6 80r 1 30r 6 4 40r 6 1 5r 3 10r 1 5r 5 47r 6 1 3 2r 1 25r 6 79r 1 31r 4 40r 6 1 5r 3 11r 1 4r 5 46r 6 1r 1 3 1r 1 26r 6 79r 1 31r 6 4 39r 6 1 4r 3 12r 1 4r 5 46r 6 1 1r 3 1r 1 26r 6 78r 1 33r 4 39r 6 1 4r 3 13r 1 3r 5 45r 6 1r 1 1r 3 1 27r 6 78r 1 33r 6 4 38r 6 1 3r 3 14r 1 3r 6 5 44r 6 1 31r 6 78r 1 33r 6 4 37r 6 1 4r 3 15r 1 2r 5 44r 6 1 32r 6 78r 1 34r 4 37r 6 1 3r 3 16r 1 2r 5 43r 6 1r 1 32r 6 79r 1 33r 6 4 36r 6 1 3r 3 17r 1 1r 6 5 42r 6 1 33r 6 79r 1 34r 6 4 34r 6 1r 1 3r 3 17r 1 1r 6 5 41r 6 1 34r 6 79r 1 35r 6 4 33r 6 1 3r 3 18r 1 2r 5 40r 6 1r 1 34r 6 79r 1 35r 6 4 33r 6 1 2r 3 19r 1 2r 6 5 38r 6 1r 1 35r 6 79r 1 31r 3 3r 1 6 4 31r 6 1r 1 2r 3 20r 1 1r 6 5 37r 6 1r 1 36r 6 80r 1 30r 3 4r 1 6 4 30r 6 1 2r 3 21r 1 2r 6 5 35r 6 1r 1 37r 6 80r 1 31r 3 4r 1 6 4 28r 6 1r 1 2r 3 22r 1 1r 6 5 34r 6 1r 1 38r 6 80r 1 32r 3 3r 1 1r 6 4 27r 6 1 2r 3 23r 1 1r 6 5 33r 6 2r 1 37r 6 81r 1 33r 3 3r 1 1r 6 4 25r 6 1r 1 2r 3 23r 1 2r 6 5 31r 6 2r 1 38r 6 82r 1 34r 3 2r 1 1r 6 4 23r 6 1r 1 2r 3 25r 1 2r 6 5 29r 6 2r 1 38r 6 83r 1 40r 6 1r 4 20r 6 1r 1 3r 3 25r 1 2r 6 5 28r 6 1r 1 40r 6 83r 1 41r 6 2r 4 17r 6 1r 1 3r 3 26r 1 3r 6 5 26r 6 1r 1 40r 6 85r 1 42r 6 1r 4 14r 6 2r 1 4r 3 26r 1 4r 6 5 23r 6 2r 1 2r 3 1r 1 35r 6 86r 1 43r 6 2r 4 6r 6 7r 1 4r 3 27r 1 5r 6 3r 5 18r 6 1r 1 2r 3 2r 1 35r 6 88r 1 44r 6 13r 1 5r 3 28r 1 6r 6 4r 5 14r 6 2r 1 1r 3 4r 1 35r 6 89r 1 46r 6 8r 1 7r 3 28r 1 9r 6 2r 5 11r 6 2r 1 1r 3 5r 1 35r 6 90r 1 64r 3 27r 1 11r 6 13r 1 2r 3 5r 1 35r 6 93r 1 41r 3 2r 1 18r 3 26r 1 13r 6 9r 1 3r 3 5r 1 35r 6 95r 1 39r 3 3r 1 19r 3 25r 1 26r 3 5r 1 35r 6 98r 1 36r 3 6r 1 20r 3 21r 1 27r 3 1r 1 37r 6 102r 1 35r 3 5r 1 24r 3 7r 1 3r 3 4r 1 66r 6 106r 1 146r 6 110r 1 141r 6 116r 1 136r 6 121r 1 130r 6 127r 1 61r 6 4r 1 57r 6 134r 1 54r 6 10r 1 50r 6 142r 1 46r 6 18r 1 37r 6 156r 1 34r 6 29r 1 28r 6 168r 1 12r 6 52r 1 15r 6 33475r 2 14r 6 234r 2 25r 6 225r 2 36r 6 215r 2 61r 6 191r 2 45r 3 2r 2 22r 6 181r 2 33r 3 16r 2 25r 6 176r 2 35r 3 15r 2 29r 6 171r 2 4r 3 2 31r 3 5r 2 2r 3 6r 2 32r 6 166r 2 4r 3 1r 2 10r 6 13r 2 8r 3 2 10r 3 2r 2 33r 6 164r 2 4r 3 1r 2 5r 6 5r 4 15r 6 8r 2 48r 6 160r 2 4r 3 2r 2 3r 6 2r 4 32r 6 3r 2 1r 6 13r 2 6 4r 2 22r 6 157r 2 4r 3 2r 2 3r 6 4 35r 6 3r 1 6r 6 15r 5 3r 6 3r 2 6 2 12r 6 155r 2 4r 3 2r 2 2r 6 1r 4 37r 6 1r 1 18r 6 3r 5 9r 6 2r 2 12r 6 152r 2 3r 3 3r 2 2r 6 4 39r 6 1r 1 18r 6 3r 5 11r 6 2r 2 3r 3 2 6r 6 150r 2 3r 3 2r 2 2r 6 1r 4 41r 6 1 18r 6 3r 5 13r 6 1r 2 2r 3 1r 2 6r 6 147r 2 4r 3 2r 2 2r 6 4 43r 1 19r 6 3r 5 15r 6 1r 2 1r 3 1r 2 6r 6 145r 2 4r 3 2r 2 1r 6 4 44r 6 1 20r 6 3r 5 15r 6 1r 2 1r 3 1r 2 6r 6 143r 2 4r 3 2r 2 1r 6 4 44r 6 1 22r 6 2r 5 17r 6 1r 2 3 1r 2 6r 6 141r 2 5r 3 1r 2 1r 4 44r 6 1 25r 6 2r 5 17r 6 1r 2 3 1r 2 6r 6 139r 2 5r 3 2r 2 4 44r 6 1 27r 6 3r 5 16r 6 1r 2 3 1r 2 7r 6 136r 2 5r 3 2r 2 4 44r 6 1 31r 6 2r 5 15r 6 1r 2 3 1r 2 7r 6 134r 2 5r 3 2r 2 4 43r 6 1r 1 34r 6 1r 5 15r 6 1r 2 3 2 8r 6 132r 2 5r 3 2r 2 4 43r 6 1r 1 36r 6 5 16r 6 1r 2 3 2 8r 6 130r 2 6r 3 1r 2 6 4 41r 6 1r 1 39r 6 1r 5 15r 6 1r 2 10r 6 128r 2 6r 3 2r 2 4 41r 6 1 43r 6 5 15r 6 1r 2 9r 6 128r 2 5r 3 2r 2 4 41r 6 1 45r 6 5 15r 6 2 10r 6 126r 2 6r 3 1r 2 4 41r 6 1 47r 6 5 15r 6 2 10r 6 124r 2 6r 3 1r 2 6 4 40r 6 1 49r 6 5 15r 6 2 10r 6 122r 2 7r 3 1r 2 4 40r 6 1 50r 6 5 15r 6 1r 2 10r 6 121r 2 6r 3 1r 2 4 40r 6 1 52r 6 5 15r 6 2 11r 6 119r 2 7r 3 1r 2 4 39r 6 1 53r 6 5 15r 6 1r 2 11r 6 117r 2 7r 3 1r 2 4 40r 6 1 54r 5 16r 6 2 11r 6 117r 2 10r 4 39r 6 1 55r 6 5 16r 6 2 11r 6 115r 2 10r 4 39r 6 1 56r 6 5 16r 6 1r 2 11r 6 114r 2 10r 4 37r 6 1r 1 58r 6 5 16r 6 2 12r 6 112r 2 10r 6 4 37r 6 1r 1 58r 6 5 16r 6 1r 2 11r 6 112r 2 10r 4 37r 6 1r 1 60r 5 17r 6 2 12r 6 110r 2 11r 4 37r 6 1 60r 6 5 17r 6 2 12r 6 110r 2 10r 6 4 36r 6 1r 1 60r 6 5 17r 6 1r 2 12r 6 108r 2 11r 6 4 36r 6 1 61r 5 19r 6 2 12r 6 108r 2 10r 6 1r 4 36r 6 1 61r 5 19r 6 2 13r 6 110r 2 7r 6 1r 4 36r 6 1 60r 6 5 19r 6 1r 2 12r 6 107r 1 2r 6 5r 2 6 1r 4 37r 6 1 60r 5 21r 6 2 12r 6 106r 1 7r 6 4r 4 38r 6 1 59r 5 21r 6 2 13r 6 105r 1 11r 6 4 38r 6 1 58r 6 5 22r 6 2 12r 6 104r 1 12r 6 4 39r 6 1 57r 6 5 22r 6 2 12r 6 104r 1 12r 6 4 40r 1 57r 6 5 22r 6 1r 2 5r 6 109r 1 13r 6 4 40r 6 1 56r 5 23r 6 5r 1 8r 6 102r 1 13r 6 4 41r 1 56r 5 24r 6 1 13r 6 101r 1 13r 4 42r 6 1 54r 5 25r 6 1 13r 6 100r 1 14r 4 43r 6 1 53r 5 25r 6 1 13r 6 100r 1 13r 6 4 43r 6 1 52r 5 26r 6 1 13r 6 99r 1 14r 6 4 44r 6 1 50r 6 5 27r 1 13r 6 99r 1 14r 6 4 44r 6 1 49r 6 5 28r 1 14r 6 97r 1 15r 6 4 45r 6 1 48r 5 29r 1 14r 6 97r 1 15r 6 4 45r 6 1 47r 6 5 29r 1 14r 6 96r 1 16r 6 4 46r 6 1 45r 6 5 30r 1 3 1 12r 6 96r 1 17r 4 48r 6 1 43r 5 30r 6 1 3 1r 1 12r 6 95r 1 17r 4 49r 1 42r 6 5 30r 6 1 3 1r 1 12r 6 94r 1 18r 4 49r 6 1 2r 6 8r 1 28r 6 5 31r 6 1 3 1r 1 12r 6 94r 1 18r 4 50r 6 1 1r 6 9r 1 26r 5 33r 6 1 3 1r 1 12r 6 93r 1 19r 4 51r 1 2r 6 8r 1 25r 5 34r 6 1 3 1r 1 12r 6 93r 1 19r 4 52r 1 1r 6 14r 1 17r 5 36r 6 1 3 1 14r 6 92r 1 19r 4 53r 1 6 7r 1 3r 6 5r 1 13r 5 37r 1 1r 3 1 14r 6 91r 1 20r 4 53r 6 1 6 5r 1 10r 6 4r 1 7r 5 37r 6 1 17r 6 91r 1 19r 6 4 54r 1 2r 6 1r 1 16r 6 5r 5 40r 6 1 17r 6 91r 1 19r 6 4 54r 6 1 22r 6 1r 5 42r 6 1 18r 6 89r 1 20r 6 4 53r 6 1 23r 5 44r 6 1 18r 6 89r 1 20r 6 4 53r 6 1 21r 5 46r 6 1 18r 6 88r 1 21r 6 4 53r 6 1 19r 5 48r 6 1 18r 6 88r 1 21r 6 4 52r 6 1 17r 6 5 49r 6 1 20r 6 87r 1 22r 4 51r 6 1 17r 5 51r 6 1 20r 6 86r 1 23r 4 50r 6 1r 1 16r 5 52r 6 1 20r 6 86r 1 20r 3 1 1r 6 4 49r 6 1 16r 5 53r 6 1 20r 6 86r 1 20r 3 1r 1 6 4 48r 6 1 16r 6 5 52r 6 1 21r 6 85r 1 21r 3 2r 1 4 48r 6 1 16r 5 53r 6 1 21r 6 85r 1 21r 3 2r 1 4 47r 6 1 16r 6 5 52r 6 1r 1 22r 6 84r 1 22r 3 1r 1 4 46r 6 1 16r 6 5 53r 6 1 23r 6 83r 1 23r 3 1r 1 6 4 45r 6 1 17r 5 53r 6 1 23r 6 83r 1 24r 3 1r 1 6 4 45r 6 1 17r 6 5 51r 6 1r 1 23r 6 83r 1 24r 3 1r 1 4 44r 6 1 18r 6 5 51r 6 1 24r 6 82r 1 26r 3 1 4 44r 6 1 19r 5 51r 6 1 25r 6 81r 1 26r 3 1 4 44r 6 1 19r 5 50r 6 1r 1 25r 6 81r 1 28r 6 4 43r 6 1 19r 5 50r 6 1 3 1r 1 23r 6 81r 1 28r 6 4 42r 6 1 8r 3 2r 1 8r 6 5 49r 6 1 3 1r 1 23r 6 80r 1 30r 4 42r 6 1 7r 3 4r 7r 6 5 48r 6 1 3 2r 1 23r 6 80r 1 30r 6 4 41r 6 1 6r 3 7r 1 5r 6 5 47r 6 1r 1 3 1r 1 24r 6 80r 1 30r 6 4 41r 6 1 5r 3 9r 1 4r 6 5 47r 6 1 3 2r 1 25r 6 79r 1 31r 4 40r 6 1 5r 3 10r 1 4r 6 5 46r 6 1r 1 3 2r 1 25r 6 78r 1 32r 6 4 39r 6 1 5r 3 11r 1 3r 6 5 46r 6 1 3 2r 1 26r 6 78r 1 33r 4 39r 6 1 4r 3 12r 1 4r 5 45r 6 1r 1 3 2r 1 26r 6 78r 1 33r 6 4 38r 6 1 4r 3 13r 1 3r 5 45r 6 1 3 2r 1 27r 6 78r 1 33r 6 4 38r 6 1 3r 3 14r 1 3r 5 44r 6 1r 1 3 2r 1 27r 6 78r 1 34r 4 37r 6 1 4r 3 15r 1 2r 5 44r 6 1 1r 3 1r 1 28r 6 78r 1 34r 6 4 36r 6 1 3r 3 16r 1 2r 5 43r 6 1r 1 32r 6 1r 3 2r 1 29r 6 78r 1 35r 4 36r 6 1 3r 3 17r 1 1r 6 5 41r 6 1r 1 34r 6 77r 1 35r 6 4 34r 6 1r 1 2r 3 18r 1 1r 6 5 41r 6 1 34r 6 79r 1 35r 6 4 33r 6 1 3r 3 18r 1 2r 5 40r 6 1 35r 6 79r 1 36r 6 4 32r 6 1 2r 3 19r 1 2r 6 5 38r 6 1r 1 35r 6 79r 1 36r 6 4 31r 6 1r 1 2r 3 20r 1 1r 6 5 37r 6 1r 1 36r 6 79r 1 32r 3 3r 1 6 1r 4 29r 6 1 2r 3 21r 1 2r 6 5 35r 6 1r 1 37r 6 80r 1 31r 3 4r 1 6 1r 4 27r 6 1r 1 2r 3 21r 1 2r 6 5 34r 6 1r 1 38r 6 80r 1 32r 3 4r 1 6 1r 4 26r 6 1 2r 3 23r 1 2r 6 5 32r 6 1r 1 38r 6 81r 1 33r 3 4r 1 6 1r 4 23r 6 1r 1 3r 3 23r 1 2r 6 5 31r 6 1r 1 39r 6 82r 1 34r 3 2r 1 1r 6 1r 4 19r 6 4r 1 2r 3 24r 1 3r 6 5 29r 6 1r 1 39r 6 83r 1 35r 3 2r 1 1r 6 2r 4 14r 6 6r 1 3r 3 24r 1 3r 6 1r 5 26r 6 2r 1 40r 6 83r 1 42r 6 1r 4 11r 6 7r 1 3r 3 25r 1 4r 6 5 25r 6 2r 1 40r 6 85r 1 42r 6 2r 4 6r 6 9r 1 3r 3 27r 1 4r 6 5 23r 6 1r 1 41r 6 86r 1 44r 6 2r 4 1r 6 10r 1 5r 3 27r 1 5r 6 3r 5 17r 6 2r 1 41r 6 88r 1 45r 6 12r 1 5r 3 28r 1 6r 6 3r 5 14r 6 2r 1 1r 3 2r 1 38r 6 88r 1 49r 6 3r 1 10r 3 28r 1 9r 6 2r 5 10r 6 2r 1 1r 3 5r 1 36r 6 90r 1 64r 3 27r 1 10r 6 13r 1 2r 3 5r 1 36r 6 92r 1 43r 3 3r 1 16r 3 27r 1 12r 6 7r 1 3r 3 7r 1 35r 6 95r 1 40r 3 4r 1 17r 3 25r 1 24r 3 7r 1 35r 6 98r 1 37r 3 6r 1 20r 3 20r 1 24r 3 6r 1 35r 6 102r 1 36r 3 5r 1 24r 3 5r 1 4r 3 3r 1 67r 6 106r 1 146r 6 110r 1 141r 6 116r 1 136r 6 121r 1 130r 6 127r 1 60r 6 5r 1 57r 6 134r 1 53r 6 11r 1 50r 6 142r 1 45r 6 19r 1 37r 6 156r 1 32r 6 31r 1 28r 6 169r 1 11r 6 52r 1 14r 6 33480r 2 8r 6 238r 2 22r 6 228r 2 32r 6 219r 2 55r 6 196r 2 45r 3 1r 2 20r 6 184r 2 32r 3 3r 2 4r 3 7r 2 24r 6 178r 2 34r 3 15r 2 28r 6 173r 2 36r 3 6r 2 3 7r 2 31r 6 168r 2 18r 6 4r 2 1r 6 2r 2 9r 3 3r 2 7r 3 3r 2 33r 6 164r 2 13r 6 6r 4 10r 6 8r 2 14r 3 2 34r 6 162r 2 11r 6 2r 4 29r 6 12r 2 6 2 34r 6 159r 2 10r 6 1r 4 35r 6 2r 1 4r 6 14r 5 3r 6 5r 2 15r 6 155r 2 10r 6 1r 4 38r 6 1r 1 15r 6 2r 5 10r 6 2r 2 13r 6 153r 2 10r 6 4 41r 6 1 16r 6 1r 5 13r 6 2r 2 11r 6 151r 2 10r 6 4 42r 1 17r 6 1r 5 16r 6 1r 2 2r 3 1r 2 6r 6 148r 2 4r 3 2 3r 6 1r 4 43r 1 17r 6 1r 5 18r 6 2 2r 3 1r 2 6r 6 146r 2 4r 3 1r 2 2r 6 4 44r 6 1 17r 6 2r 5 18r 6 1r 2 1r 3 1r 2 6r 6 144r 2 4r 3 1r 2 1r 6 4 45r 1 20r 6 1r 5 20r 6 2 1r 3 1r 2 6r 6 141r 2 5r 3 1r 2 1r 6 4 44r 6 1 23r 6 5 20r 6 2 1r 3 1r 2 6r 6 139r 2 5r 3 1r 2 1r 4 45r 6 1 25r 6 1r 5 19r 6 2 1r 3 1r 2 6r 6 137r 2 5r 3 2r 2 4 44r 6 1r 1 27r 6 1r 5 19r 6 2 3 2r 2 6r 6 135r 2 6r 3 1r 2 4 44r 6 1 30r 6 2r 5 18r 6 2 3 1r 2 7r 6 133r 2 6r 3 1r 2 6 4 42r 6 1r 1 33r 6 1r 5 18r 6 2 3 1r 2 7r 6 131r 2 6r 3 1r 2 6 4 42r 6 1 37r 6 5 18r 6 2 3 1r 2 7r 6 130r 2 5r 3 2r 2 4 41r 6 1r 1 40r 5 18r 6 2 3 1r 2 7r 6 128r 2 5r 3 2r 2 4 41r 6 1r 1 43r 5 17r 6 2 3 2 8r 6 126r 2 6r 3 1r 2 6 4 40r 6 1r 1 45r 5 16r 6 1r 3 1r 2 8r 6 124r 2 6r 3 2r 2 4 40r 6 1r 1 47r 5 16r 6 2 11r 6 122r 2 7r 3 1r 2 4 40r 6 1 54r 6 5 17r 6 2 11r 6 119r 2 6r 3 2r 2 4 40r 6 1 51r 5 17r 6 2 12r 6 117r 2 7r 3 2r 2 4 39r 6 1 52r 5 18r 6 2 11r 6 117r 2 7r 3 1r 2 4 39r 6 1 54r 5 17r 6 1r 2 11r 6 115r 2 7r 3 1r 2 1r 4 38r 6 1r 1 54r 6 5 17r 6 2 12r 6 114r 2 7r 3 1r 2 6 4 37r 6 1r 1 56r 5 18r 6 2 12r 6 112r 2 8r 3 1r 2 4 37r 6 1r 1 57r 6 5 17r 6 2 12r 6 112r 2 8r 3 2 6 4 37r 6 1 58r 6 5 17r 6 2 13r 6 110r 2 11r 6 4 36r 6 1r 1 58r 6 5 18r 6 2 12r 6 110r 2 11r 4 36r 6 1r 1 59r 6 5 18r 6 2 13r 6 108r 2 11r 6 4 36r 6 1r 1 59r 5 20r 6 2 12r 6 109r 2 10r 6 4 36r 6 1 59r 6 5 20r 6 2 13r 6 112r 2 5r 6 1r 4 36r 6 1r 1 58r 5 21r 6 2 13r 6 107r 1 2r 6 4r 2 2r 6 1r 4 36r 6 1r 1 58r 5 22r 6 2 13r 6 105r 1 9r 6 2r 4 37r 6 1r 1 58r 5 22r 6 2 13r 6 105r 1 11r 6 4 38r 6 1r 1 56r 6 5 22r 6 2 13r 6 104r 1 12r 6 4 39r 6 1 56r 5 24r 6 2 12r 6 104r 1 12r 6 4 39r 6 1 56r 5 24r 6 2 4r 6 111r 1 13r 6 4 40r 6 1 55r 5 25r 2 6 10r 1 1r 6 102r 1 13r 4 42r 1 55r 5 25r 6 5r 1 8r 6 100r 1 14r 4 42r 6 1 53r 5 26r 6 1 13r 6 100r 1 14r 4 43r 6 1 51r 6 5 26r 6 1 13r 6 100r 1 14r 4 43r 6 1 51r 5 27r 6 1 13r 6 99r 1 15r 4 44r 6 1 49r 6 5 27r 6 1 14r 6 98r 1 15r 4 44r 6 1 48r 6 5 28r 6 1 14r 6 97r 1 16r 4 45r 6 1 47r 5 29r 6 1 14r 6 97r 1 16r 4 45r 6 1 46r 6 5 29r 6 1 14r 6 96r 1 17r 4 46r 6 1 44r 6 5 30r 6 1 14r 6 96r 1 17r 4 49r 6 1 41r 6 5 30r 6 1 15r 6 95r 1 17r 4 49r 6 1 40r 6 5 30r 6 1r 1 3 1 13r 6 94r 1 18r 4 49r 6 1 39r 6 5 31r 6 1r 3 1r 1 13r 6 94r 1 18r 4 50r 6 1 37r 6 5 32r 6 1r 3 1r 1 13r 6 93r 1 19r 4 51r 1 36r 6 5 33r 6 1 3 1r 1 14r 6 92r 1 19r 4 51r 6 1 33r 6 5 35r 6 1 3 1r 1 14r 6 92r 1 19r 4 52r 6 1 31r 6 5 36r 6 1 3 1r 1 14r 6 91r 1 20r 4 53r 6 1 26r 6 1r 1 6 5 37r 6 1 3 1r 1 14r 6 91r 1 20r 4 53r 6 1 24r 6 1r 5 41r 6 1 3 1r 1 15r 6 89r 1 21r 4 53r 6 1 24r 5 43r 6 1 3 1 16r 6 89r 1 21r 4 53r 6 1 22r 5

45r 6 1 18r 6 89r 1 21r 4 53r 6 1 21r 5 46r 6 1 18r 6 88r 1
22r 4 52r 6 1 20r 5 48r 6 1 18r 6 88r 1 22r 4 52r 6 1 18r 6
5 48r 6 1 20r 6 87r 1 22r 4 51r 6 1 18r 5 50r 6 1 20r 6 87r 1
22r 6 4 50r 6 1 17r 5 51r 6 1 20r 6 86r 1 23r 6 4 49r 6 1 17r 5
52r 6 1 20r 6 86r 1 23r 6 4 48r 6 1r 1 16r 5 52r 6 1 21r 6 86r 1
24r 4 48r 6 1 16r 5 53r 6 1 21r 6 85r 1 25r 4 48r 6 1 16r 5
53r 6 1 22r 6 84r 1 22r 3 1 1r 6 4 46r 6 1 16r 5 53r 6 1 23r 6
84r 1 22r 3 1r 1 6 4 45r 6 1 16r 6 5 53r 6 1 23r 6 83r 1 23r 3
2r 1 4 45r 6 1 17r 5 53r 6 1 23r 6 83r 1 23r 3 2r 1 4 45r 6
1 17r 6 5 51r 6 1 24r 6 83r 1 24r 3 1r 1 4 44r 6 1 18r 6 5 51r 6
1 25r 6 81r 1 25r 3 1r 1 6 4 43r 6 1 19r 5 51r 6 1 25r 6 81r 1
26r 3 1r 6 4 43r 6 1 19r 5 50r 6 1 26r 6 81r 1 26r 3 1r 1 4
43r 6 1 19r 5 50r 6 1 26r 6 81r 1 27r 3 1 4 42r 6 1 8r 3 2r 1
8r 5 50r 6 1 26r 6 80r 1 30r 6 4 41r 6 1 6r 3 6r 1 6r 5 49r 6
1 1r 3 1 24r 6 80r 1 31r 4 41r 6 1 5r 3 8r 1 5r 6 5 47r 6 1r 1
3 1r 1 25r 6 79r 1 31r 4 41r 6 1 5r 3 9r 1 4r 6 5 47r 6 1 3
2r 1 25r 6 79r 1 31r 6 4 39r 6 1 5r 3 10r 1 4r 6 5 46r 6 1 3
2r 1 26r 6 78r 1 33r 4 39r 6 1 4r 3 12r 1 3r 6 5 46r 6 1 3 2r 1
26r 6 78r 1 33r 6 4 38r 6 1 4r 3 13r 1 2r 6 5 45r 6 1 3 3r 1
26r 6 78r 1 33r 6 4 38r 6 1 3r 3 14r 1 3r 5 44r 6 1r 1 3 2r 1
27r 6 78r 1 34r 6 4 36r 6 1 4r 3 15r 1 2r 5 44r 6 1 3 2r 1 29r 6
77r 1 34r 6 4 36r 6 1 4r 3 15r 1 2r 5 43r 6 1r 1 3 2r 1 29r 6
77r 1 35r 4 36r 6 1 3r 3 16r 1 2r 5 43r 6 1 1r 3 1r 1 30r 6
77r 1 35r 6 4 35r 6 1 3r 3 17r 1 1r 6 5 41r 6 1r 1 1r 3 1 31r 6
77r 1 36r 4 34r 6 1r 1 2r 3 18r 1 1r 6 5 40r 6 1r 1 35r 6 78r 1
35r 6 4 33r 6 1 3r 3 18r 1 2r 5 40r 6 1 36r 6 78r 1 36r 6 4
32r 6 1 3r 3 18r 1 2r 6 5 38r 6 1 37r 6 78r 1 36r 6 1r 4 30r 6
1 2r 3 20r 1 2r 6 5 36r 6 1r 1 37r 6 79r 1 37r 6 1r 4 29r 6
1 2r 3 21r 1 2r 6 5 35r 6 1r 1 37r 6 80r 1 33r 3 2r 1 6 1r 4
27r 6 1r 1 2r 3 21r 1 2r 6 5 34r 6 1r 1 38r 6 80r 1 33r 3 3r 1
1r 6 4 26r 6 1 2r 3 22r 1 3r 6 5 32r 6 1r 1 39r 6 80r 1 33r 3
4r 1 1r 6 4 23r 6 1r 1 3r 3 23r 1 2r 6 5 31r 6 1r 1 39r 6 81r 1
34r 3 4r 1 1r 6 1r 4 19r 6 2r 1 3r 3 24r 1 3r 6 5 28r 6 2r 1
40r 6 82r 1 35r 3 3r 1 1r 6 1r 4 16r 6 4r 1 2r 3 25r 1 3r 6
1r 5 26r 6 2r 1 40r 6 83r 1 37r 3 2r 1 1r 6 2r 4 11r 6 6r 1
3r 3 25r 1 4r 6 5 25r 6 1r 1 41r 6 84r 1 39r 3 1 3r 6 1r 4 6r 6
8r 1 4r 3 27r 1 4r 6 1r 5 21r 6 2r 1 41r 6 86r 1 45r 6 14r 1
5r 3 27r 1 5r 6 3r 5 16r 6 2r 1 43r 6 87r 1 46r 6 10r 1 6r 3
28r 1 7r 6 2r 5 14r 6 1r 1 44r 6 88r 1 64r 3 28r 1 8r 6 2r 5
11r 6 2r 1 1r 3 3r 1 38r 6 90r 1 64r 3 28r 1 9r 6 13r 1 1r 3
4r 1 38r 6 92r 1 44r 3 3r 1 15r 3 27r 1 11r 6 7r 1 3r 3 6r 1
37r 6 95r 1 41r 3 5r 1 16r 3 24r 1 21r 3 9r 1 36r 6 97r 1 39r 3
6r 1 20r 3 19r 1 21r 3 8r 1 36r 6 101r 1 39r 3 4r 1 34r 3 2r 1
68r 6 106r 1 146r 6 110r 1 141r 6 116r 1 135r 6 122r 1 130r 6
127r 1 60r 6 6r 1 56r 6 134r 1 53r 6 12r 1 48r 6 143r 1 45r 6
19r 1 37r 6 156r 1 31r 6 32r 1 28r 6 169r 1 10r 6 53r 1 14r 6
33731r 2 17r 6 232r 2 28r 6 222r 2 44r 6 207r 2 64r 6 188r 2
31r 3 1r 2 9r 3 4r 2 23r 6 180r 2 33r 3 16r 2 26r 6 175r 2 35r 3
16r 2 29r 6 170r 2 36r 3 7r 2 1r 3 7r 2 31r 6 166r 2 14r 6 23r 2
14r 3 2r 2 33r 6 163r 2 11r 6 3r 4 24r 6 8r 2 12r 6 2 28r 6
160r 2 11r 6 1r 4 35r 6 1r 1 2r 6 23r 2 17r 6 157r 2 10r 6 1r 4
38r 6 1 7r 6 3r 1 1r 6 5r 5 7r 6 3r 2 13r 6 155r 2 9r 6 1r 4
40r 6 1 15r 6 2r 5 12r 6 2r 2 12r 6 151r 2 10r 6 1r 4 42r 1
15r 6 2r 5 14r 6 2r 2 11r 6 149r 2 10r 6 4 43r 1 16r 6 1r 5

17r 6 2r 2 10r 6 147r 2 9r 6 1r 4 44r 1 16r 6 2r 5 18r 6 1r 2
2r 3 2 6r 6 145r 2 9r 6 4 45r 1 18r 6 1r 5 20r 6 1r 2 1r 3 2
6r 6 143r 2 8r 6 1r 4 44r 6 1 19r 6 3r 5 20r 6 2 3 1r 2 7r 6
140r 2 8r 6 4 45r 6 1 21r 6 3r 5 20r 6 2 3 2r 2 6r 6 138r 2
8r 6 4 44r 6 1 24r 6 3r 5 20r 6 2 3 1r 2 7r 6 136r 2 8r 6 4
44r 6 1 27r 6 3r 5 19r 6 2 3 1r 2 7r 6 134r 2 8r 6 4 43r 6 1
30r 6 3r 5 19r 6 2 3 1r 2 7r 6 132r 2 9r 4 43r 6 1 33r 6 1r 5
20r 6 2 3 1r 2 7r 6 130r 2 9r 4 42r 6 1 37r 6 5 20r 6 3 2r 2
7r 6 128r 2 9r 6 4 41r 6 1 39r 6 5 19r 6 2 3 1r 2 8r 6 126r 2
10r 4 41r 6 1 42r 5 19r 6 2 3 1r 2 8r 6 124r 2 7r 3 2 6 4 41r 6
1 45r 5 18r 6 2 3 2 9r 6 123r 2 6r 3 1r 2 4 41r 6 1 46r 6 5
18r 6 3 1r 2 9r 6 121r 2 6r 3 2r 2 4 40r 6 1 48r 6 5 17r 6 2
3 2 9r 6 120r 2 7r 3 1r 2 6 4 39r 6 1 49r 6 5 18r 6 2 11r 6
119r 2 6r 3 2r 2 4 40r 6 1 50r 5 18r 6 2 12r 6 117r 2 7r 3 1r 2
6 4 39r 6 1 51r 5 19r 6 2 12r 6 115r 2 7r 3 2r 2 4 39r 6 1 52r 6
5 18r 6 1r 2 12r 6 114r 2 7r 3 2r 2 4 38r 6 1 54r 5 19r 6 2
12r 6 113r 2 8r 3 1r 2 6 4 37r 6 1r 1 54r 6 5 18r 6 1r 2 12r 6
112r 2 7r 3 2r 2 6 4 36r 6 1r 1 56r 5 19r 6 2 13r 6 110r 2 8r 3
2r 2 4 36r 6 1r 1 57r 6 5 18r 6 2 13r 6 110r 2 8r 3 1r 2 6 4
36r 6 1r 1 58r 5 18r 6 1r 2 13r 6 108r 2 9r 3 1r 2 6 4 35r 6
1r 1 58r 5 20r 6 2 13r 6 109r 2 8r 3 2 6 4 36r 6 1r 1 57r 6
5 20r 6 1r 2 13r 6 111r 2 5r 3 2 6 4 36r 6 1r 1 57r 5 22r 6
2 13r 6 107r 1 2r 6 4r 2 2r 6 1r 4 36r 6 1r 1 57r 5 22r 6 2
14r 6 105r 1 8r 6 4r 4 36r 6 1r 1 56r 6 5 22r 6 1r 2 13r 6 105r 1
12r 4 37r 6 1r 1 56r 6 5 22r 6 1r 2 13r 6 104r 1 13r 4 38r 6
1r 1 55r 5 24r 6 2 13r 6 104r 1 13r 4 39r 6 1 55r 5 24r 6 1r 2
10r 6 105r 1 14r 4 40r 6 1 54r 5 25r 6 2 2r 6 8r 1 1r 6 102r 1
13r 6 4 41r 1 53r 6 5 25r 6 4r 1 10r 6 101r 1 13r 6 4 41r 6
1 52r 6 5 25r 6 1r 1 13r 6 100r 1 14r 6 4 42r 6 1 50r 6 5 26r 6
1r 1 13r 6 100r 1 14r 6 4 42r 6 1 50r 5 27r 6 1r 1 14r 6 98r 1
15r 4 44r 6 1 48r 6 5 27r 6 1r 1 14r 6 98r 1 15r 4 44r 6 1 47r 6
5 28r 6 1r 1 14r 6 97r 1 16r 4 45r 6 1 46r 5 30r 6 1 14r 6 97r 1
16r 4 45r 6 1 45r 6 5 30r 6 1 14r 6 96r 1 17r 4 46r 6 2r 1 41r 6
5 31r 6 1 15r 6 95r 1 17r 4 47r 6 3r 1 39r 5 32r 6 1 15r 6 95r 1
17r 4 48r 6 1r 1 39r 6 5 31r 6 1r 1 15r 6 94r 1 18r 4 49r 6
1r 1 37r 6 5 32r 6 1r 1 15r 6 94r 1 18r 4 50r 6 1 36r 6 5 33r 6
1 3 1r 1 14r 6 92r 1 19r 4 51r 6 1 34r 6 5 34r 6 1 3 1r 1 14r 6
92r 1 19r 6 4 50r 6 1 33r 5 36r 6 1 3 1r 1 14r 6 92r 1 19r 6
4 51r 6 1 31r 5 36r 6 1r 1 3 1r 1 14r 6 91r 1 20r 4 53r 6 1
26r 6 1r 5 38r 6 1r 1 3 1r 1 15r 6 90r 1 20r 4 53r 6 1 24r 6
1r 5 41r 6 3 2r 1 15r 6 90r 1 20r 4 53r 6 1 24r 5 43r 6 1 3
1 16r 6 89r 1 21r 4 53r 6 1 22r 5 44r 6 1 3 1r 1 16r 6 89r 1
21r 4 52r 6 1r 1 21r 5 45r 6 1 1r 3 1 17r 6 87r 1 22r 4 52r 6
1 20r 5 47r 6 1 20r 6 87r 1 22r 4 51r 6 1r 1 18r 5 49r 6 1 20r 6
87r 1 22r 6 4 50r 6 1 18r 5 50r 6 1 20r 6 87r 1 22r 6 4 49r 6
1r 1 17r 5 51r 6 1 20r 6 86r 1 24r 4 49r 6 1 16r 6 5 51r 6 1r 1
20r 6 86r 1 24r 4 48r 6 1 17r 5 52r 6 1 21r 6 86r 1 24r 6 4
47r 6 1 6 1 14r 5 53r 6 1 21r 6 85r 1 25r 6 4 47r 6 1 15r 6
5 52r 6 1r 1 22r 6 84r 1 25r 6 4 46r 6 1 15r 5 54r 6 1 23r 6
84r 1 26r 4 46r 6 1 15r 6 5 53r 6 1 23r 6 83r 1 27r 4 45r 6
1 17r 5 52r 6 1r 1 23r 6 83r 1 24r 3 1r 1 4 45r 6 1 17r 6 5
51r 6 1 25r 6 82r 1 24r 3 1r 1 6 4 43r 6 1 18r 6 5 51r 6 1 25r 6
81r 1 25r 3 2r 1 4 43r 6 1 19r 5 50r 6 1r 1 25r 6 81r 1 25r 3
2r 1 4 43r 6 1 19r 5 50r 6 1 26r 6 81r 1 26r 3 1r 1 6 4 42r 6

1 19r 5 50r 6 1 26r 6 81r 1 26r 3 2r 6 4 41r 6 1 7r 3 3r 1 8r 5
49r 6 1r 1 26r 6 80r 1 28r 3 1r 1 4 41r 6 1 6r 3 6r 1 6r 5 49r 6
1 28r 6 79r 1 29r 3 1 6 4 40r 6 1 5r 3 8r 1 5r 5 48r 6 1r 1
28r 6 79r 1 31r 6 4 40r 6 1 5r 3 9r 1 4r 6 5 47r 6 1 29r 6 79r 1
32r 4 39r 6 1 5r 3 11r 1 3r 6 5 46r 6 1 1r 3 1r 1 26r 6 78r 1
33r 6 4 38r 6 1 4r 3 12r 1 3r 6 5 45r 6 1r 1 3 2r 1 26r 6 78r 1
33r 6 4 38r 6 1 4r 3 13r 1 2r 6 5 45r 6 1 3 2r 1 27r 6 78r 1
34r 4 38r 6 1 3r 3 14r 1 2r 6 5 44r 6 1r 1 3 2r 1 28r 6 77r 1
34r 6 4 36r 6 1 4r 3 15r 1 2r 5 44r 6 1 3 2r 1 29r 6 77r 1 35r 4
36r 6 1 4r 3 15r 1 2r 5 43r 6 1 3 3r 1 29r 6 77r 1 35r 6 4 35r 6
1 3r 3 16r 1 2r 5 43r 6 1 3 2r 1 30r 6 77r 1 36r 4 35r 6 1 3r 3
17r 1 1r 6 5 41r 6 1 1r 3 2r 1 30r 6 77r 1 36r 6 4 33r 6 1 4r 3
17r 1 1r 6 5 40r 6 1r 1 1r 3 1r 1 31r 6 77r 1 37r 4 33r 6 1
3 1 2r 3 17r 1 2r 5 39r 6 1r 1 2r 3 1 32r 6 78r 1 36r 6 4 31r 6
1r 1 3 1r 1 1r 3 17r 1 2r 6 5 38r 6 1 37r 6 78r 1 37r 6 4 30r 6
1 1r 3 1r 1 1r 3 17r 1 2r 6 1r 5 36r 6 1 38r 6 78r 1 38r 6 4
29r 6 1 1r 3 20r 1 4r 6 5 34r 6 1r 1 38r 6 79r 1 39r 6 4 27r 6
1 2r 3 20r 1 4r 6 5 34r 6 1r 1 38r 6 80r 1 35r 3 1r 1 1r 6 1r 4
24r 6 1r 1 3r 3 22r 1 2r 6 5 31r 6 2r 1 39r 6 80r 1 34r 3 4r 1
6 1r 4 21r 6 2r 1 3r 3 24r 1 1r 6 1r 5 29r 6 2r 1 39r 6 81r 1
35r 3 4r 1 6 1r 4 19r 6 2r 1 4r 3 24r 1 2r 6 5 28r 6 2r 1 40r 6
82r 1 35r 3 3r 1 2r 6 1r 4 15r 6 3r 1 4r 3 25r 1 3r 6 5 26r 6
1r 1 41r 6 83r 1 36r 3 3r 1 2r 6 2r 4 9r 6 6r 1 4r 3 26r 1 3r 6
1r 5 23r 6 2r 1 41r 6 84r 1 38r 3 2r 1 3r 6 1r 4 4r 6 9r 1 4r 3
27r 1 4r 6 1r 5 20r 6 3r 1 42r 6 85r 1 46r 6 12r 1 6r 3 27r 1
5r 6 3r 5 16r 6 2r 1 43r 6 86r 1 48r 6 7r 1 9r 3 27r 1 7r 6
1r 5 14r 6 2r 1 44r 6 88r 1 65r 3 27r 1 9r 6 1r 5 10r 6 2r 1
45r 6 90r 1 49r 3 1r 1 13r 3 27r 1 9r 6 12r 1 2r 3 3r 1 40r 6
91r 1 45r 3 4r 1 13r 3 27r 1 12r 6 3r 1 5r 3 5r 1 39r 6 95r 1
42r 3 6r 1 15r 3 23r 1 18r 3 10r 1 38r 6 97r 1 41r 3 6r 1 19r 3
17r 1 18r 3 11r 1 37r 6 101r 1 44r 3 1 33r 3 1r 1 22r 3 6r 1
39r 6 106r 1 146r 6 110r 1 142r 6 115r 1 136r 6 121r 1 130r 6
127r 1 60r 6 6r 1 56r 6 134r 1 52r 6 13r 1 48r 6 143r 1 44r 6
20r 1 37r 6 156r 1 30r 6 33r 1 28r 6 170r 1 9r 6 53r 1 14r 6
33737r 2 8r 6 238r 2 23r 6 226r 2 36r 6 215r 2 58r 6 193r 2
69r 6 183r 2 31r 3 17r 2 25r 6 177r 2 33r 3 17r 2 27r 6 173r 2
35r 3 17r 2 30r 6 168r 2 18r 6 15r 2 16r 3 3r 2 32r 6 165r 2
11r 6 6r 4 18r 6 8r 2 43r 6 162r 2 11r 6 1r 4 30r 6 20r 2 28r 6
159r 2 10r 6 1r 4 36r 6 2r 1 7r 6 20r 2 15r 6 155r 2 10r 6 1r 4
39r 6 1 14r 6 2r 5 11r 6 2r 2 13r 6 153r 2 10r 6 4 41r 6 1 14r 6
2r 5 14r 6 2r 2 11r 6 151r 2 9r 6 1r 4 42r 6 1 14r 6 1r 5 17r 6
2r 2 11r 6 148r 2 9r 6 4 44r 1 15r 6 2r 5 18r 6 2r 2 10r 6 146r 2
8r 6 1r 4 44r 6 1 16r 6 1r 5 20r 6 1r 2 10r 6 143r 2 9r 6 4
45r 1 18r 6 2r 5 21r 6 2 2r 3 2 6r 6 141r 2 9r 6 4 44r 6 1 20r 6
1r 5 22r 6 1r 2 3 1r 2 6r 6 139r 2 9r 4 45r 6 1 22r 6 2r 5 21r 6
1r 2 3 1r 2 6r 6 137r 2 9r 4 45r 6 1 24r 6 2r 5 21r 6 1r 2 3
1r 2 6r 6 135r 2 9r 6 4 43r 6 1 27r 6 2r 5 22r 6 2 3 1r 2 6r 6
133r 2 9r 6 4 43r 6 1 29r 6 3r 5 20r 6 2 3 2r 2 6r 6 131r 2
9r 6 4 42r 6 1 32r 6 2r 5 22r 2 3 2r 2 6r 6 129r 2 10r 4 42r 6
1 35r 6 1r 5 21r 6 2 3 1r 2 7r 6 127r 2 10r 4 41r 6 1r 1 37r 6
1r 5 21r 6 3 2r 2 7r 6 126r 2 8r 6 1r 4 41r 1 40r 6 2r 5 20r 2
3 1r 2 8r 6 124r 2 9r 6 4 41r 1 42r 6 2r 5 20r 2 3 1r 2 8r 6
122r 2 10r 4 41r 1 44r 6 2r 5 19r 6 2 3 2 9r 6 120r 2 10r 6
4 40r 1 46r 6 2r 5 18r 6 2 3 1r 2 9r 6 119r 2 10r 4 40r 1 48r 6

1r 5 19r 6 2 3 2 10r 6 117r 2 7r 3 1r 2 1r 4 39r 1 49r 6 1r 5
20r 2 3 1r 2 10r 6 115r 2 8r 3 1r 2 6 4 38r 6 1 50r 6 5 20r 6
2 13r 6 114r 2 7r 3 2r 2 4 39r 1 51r 6 1r 5 20r 6 2 12r 6 113r 2
8r 3 1r 2 1r 4 37r 6 1 53r 6 5 20r 6 2 13r 6 112r 2 8r 3 1r 2
6 4 36r 6 1 54r 6 1r 5 19r 6 1r 2 13r 6 110r 2 8r 3 2r 2 6 4
35r 6 1 56r 6 5 20r 6 2 13r 6 110r 2 8r 3 2r 2 4 36r 1 57r 6
5 21r 2 14r 6 108r 2 9r 3 1r 2 6 4 36r 1 57r 6 1r 5 20r 6 2
13r 6 108r 2 8r 3 2r 2 6 4 35r 6 1 57r 6 5 21r 6 2 14r 6 110r 2
5r 3 2r 6 1r 4 35r 1 58r 5 23r 6 2 13r 6 107r 1 1r 6 5r 2 3r 6
1r 4 35r 1 58r 5 23r 6 2 14r 6 105r 1 10r 6 3r 4 35r 6 1 56r 5
24r 6 1r 2 13r 6 105r 1 10r 3 1 6 4 36r 6 1r 1 55r 5 25r 6 2
13r 6 104r 1 11r 3 1 6 4 37r 6 1 55r 5 25r 6 2 13r 6 104r 1
10r 3 1r 1 6 4 38r 6 1 53r 6 5 25r 6 2 9r 6 1r 1 6 104r 1 14r 6
4 39r 1 53r 6 5 26r 2 3r 6 1r 1 9r 6 101r 1 14r 6 4 39r 6 1
52r 6 5 26r 6 1r 1 13r 6 101r 1 14r 4 41r 6 1 50r 6 5 27r 6
1r 1 13r 6 100r 1 15r 4 42r 6 1 49r 6 5 27r 6 1r 1 14r 6 99r 1
15r 4 42r 6 1 48r 6 5 29r 6 1 14r 6 98r 1 15r 6 4 43r 1 48r 6
5 29r 6 1 14r 6 98r 1 15r 6 4 43r 6 1 46r 6 5 30r 6 1 14r 6
97r 1 16r 6 4 44r 1 46r 5 31r 6 1 14r 6 97r 1 16r 6 4 44r 6
1 44r 6 5 31r 6 1 15r 6 96r 1 16r 6 4 46r 6 2r 1 39r 6 5 32r 6
1 15r 6 95r 1 17r 6 4 47r 6 3r 1 37r 5 33r 6 1 15r 6 95r 1 17r 6
4 48r 6 1r 1 6 3r 1 3r 6 1r 1 26r 6 5 33r 6 1 15r 6 94r 1 18r 6
4 48r 6 1r 1 2r 6 9r 1 23r 6 5 34r 6 1 16r 6 93r 1 18r 6 4 49r 6
1r 1 2r 6 9r 1 22r 5 35r 1 17r 6 93r 1 18r 6 4 50r 6 1 3r 6
10r 1 19r 5 35r 6 1 17r 6 92r 1 19r 6 4 50r 6 1 3r 6 7r 1 6
5r 1 13r 6 5 36r 6 1 3 1 15r 6 92r 1 19r 6 4 51r 6 1 2r 6 7r 1
5r 6 4r 1 8r 5 38r 6 1 3 1r 1 15r 6 90r 1 20r 6 4 52r 6 1 2r 6
5r 1 16r 6 2r 5 39r 6 3 2r 1 15r 6 90r 1 20r 6 4 52r 6 1 4r 6
1r 1 17r 6 5 41r 6 1 3 2r 1 15r 6 90r 1 20r 6 4 52r 6 1 23r 5
43r 6 1 3 1r 1 16r 6 89r 1 21r 4 53r 6 1 22r 5 44r 6 1 3 1r 1
17r 6 88r 1 21r 4 52r 6 1 21r 5 46r 6 1 3 1r 1 17r 6 88r 1 21r 4
52r 6 1 20r 5 47r 6 1 3 1r 1 17r 6 87r 1 22r 6 4 50r 6 1r 1
18r 5 49r 6 1 3 1 18r 6 87r 1 22r 6 4 50r 6 1 18r 5 50r 6 1
3 1 18r 6 87r 1 23r 4 49r 6 1r 1 17r 5 51r 6 1 20r 6 86r 1 24r 4
49r 6 1 16r 5 52r 6 1 21r 6 86r 1 24r 6 4 47r 6 1 16r 6 5 52r 6
1 22r 6 85r 1 24r 6 4 48r 6 2r 1 13r 5 53r 6 1 22r 6 84r 1 25r 6
4 47r 6 1 15r 6 5 52r 6 1 23r 6 84r 1 26r 4 46r 6 1 14r 6 5
54r 6 1 23r 6 84r 1 26r 4 46r 6 1 15r 6 5 53r 6 1 23r 6 83r 1
27r 4 45r 6 1 16r 6 5 52r 6 1 24r 6 83r 1 27r 6 4 44r 6 1 17r 6
5 51r 6 1 25r 6 82r 1 27r 6 4 43r 6 1r 1 17r 6 5 51r 6 1 25r 6
81r 1 26r 3 1 1r 4 43r 6 1 19r 5 50r 6 1 26r 6 81r 1 25r 3 2r 1
6 4 42r 6 1 19r 5 50r 6 1 26r 6 81r 1 26r 3 2r 6 4 42r 6 1 19r 5
50r 6 1 26r 6 81r 1 26r 3 2r 1 4 42r 6 1 6r 3 4r 1 7r 5 49r 6
1 28r 6 79r 1 28r 3 1r 1 6 4 40r 6 1 6r 3 6r 1 6r 5 49r 6 1
28r 6 79r 1 28r 3 2r 1 4 40r 6 1 5r 3 8r 1 5r 5 48r 6 1r 1 28r 6
79r 1 29r 3 1r 1 4 40r 6 1 5r 3 9r 1 4r 5 48r 6 1 29r 6 78r 1
31r 3 1 6 4 38r 6 1 5r 3 11r 1 3r 6 5 46r 6 1 30r 6 78r 1 34r 4
38r 6 1 5r 3 11r 1 3r 6 5 45r 6 1r 1 30r 6 78r 1 34r 4 38r 6
1 4r 3 13r 1 2r 6 5 45r 6 1 1r 3 1r 1 28r 6 77r 1 34r 6 4 37r 6
1 3r 3 14r 1 2r 6 5 44r 6 1 1r 3 2r 1 28r 6 77r 1 35r 4 36r 6
1 4r 3 15r 1 2r 5 43r 6 1r 1 3 2r 1 29r 6 77r 1 35r 6 4 35r 6
1 4r 3 15r 1 2r 5 43r 6 1 3 3r 1 29r 6 77r 1 36r 4 35r 6 1 3r 3
17r 1 1r 5 42r 6 1r 1 3 2r 1 30r 6 77r 1 36r 6 4 34r 6 1 3r 3
17r 1 1r 5 42r 6 1 3 3r 1 30r 6 77r 1 37r 4 33r 6 1 3 1 2r 3

17r 1 1r 6 5 40r 6 1 1r 3 2r 1 31r 6 77r 1 37r 6 4 32r 6 1 3
1r 1 2r 3 16r 1 1r 6 5 39r 6 1r 1 1r 3 1r 1 32r 6 78r 1 37r 6
4 30r 6 1r 1 3 1r 1 2r 3 16r 1 2r 6 5 37r 6 1r 1 2r 3 1r 1 32r 6
78r 1 37r 6 1r 4 29r 6 1 3 2r 1 1r 3 17r 1 2r 6 1r 5 35r 6 1r 1
3r 3 1 33r 6 78r 1 38r 6 4 29r 6 1 3 2r 1 1r 3 16r 1 4r 6 5
34r 6 1r 1 39r 6 78r 1 39r 6 4 27r 6 1 1r 3 2r 1 3 17r 1 4r 6
1r 5 32r 6 1r 1 39r 6 80r 1 39r 6 1r 4 24r 6 1r 1 1r 3 21r 1
1r 3 1r 1 1r 6 5 31r 6 1r 1 40r 6 80r 1 36r 3 1r 1 2r 6 4 21r 6
2r 1 4r 3 19r 1 1r 3 1r 1 1r 6 1r 5 29r 6 1r 1 41r 6 80r 1 36r 3
3r 1 1r 6 1r 4 18r 6 2r 1 4r 3 20r 1 1r 3 2r 1 1r 6 5 28r 6
1r 1 41r 6 81r 1 36r 3 4r 1 1r 6 1r 4 15r 6 3r 1 4r 3 26r 1
2r 6 5 25r 6 2r 1 41r 6 83r 1 36r 3 4r 1 2r 6 1r 4 11r 6 4r 1
4r 3 28r 1 1r 6 1r 5 23r 6 2r 1 42r 6 83r 1 38r 3 2r 1 3r 6
2r 4 2r 6 10r 1 5r 3 29r 1 1r 6 1r 5 20r 6 2r 1 43r 6 85r 1
39r 3 1r 1 5r 6 10r 1 7r 3 26r 1 2r 3 1 2r 6 3r 5 16r 6 2r 1
43r 6 86r 1 66r 3 27r 1 7r 6 2r 5 13r 6 2r 1 44r 6 88r 1 65r 3
27r 1 9r 6 2r 5 6r 6 5r 1 46r 6 89r 1 49r 3 3r 1 11r 3 27r 1
10r 6 11r 1 47r 6 91r 1 46r 3 5r 1 12r 3 26r 1 13r 6 1 8r 3
2r 1 42r 6 93r 1 44r 3 6r 1 15r 3 22r 1 14r 3 12r 1 40r 6 97r 1
43r 3 5r 1 18r 3 17r 1 16r 3 12r 1 39r 6 100r 1 80r 3 1 20r 3
9r 1 39r 6 104r 1 147r 6 110r 1 142r 6 115r 1 136r 6 121r 1
130r 6 127r 1 60r 6 6r 1 56r 6 134r 1 52r 6 13r 1 49r 6 142r 1
44r 6 20r 1 38r 6 155r 1 30r 6 32r 1 30r 6 169r 1 9r 6 52r 1
15r 6 33988r 2 17r 6 231r 2 30r 6 221r 2 45r 6 206r 2 63r 6
188r 2 31r 3 3r 2 7r 3 3r 2 24r 6 180r 2 33r 3 16r 2 26r 6 175r 2
34r 3 17r 2 28r 6 171r 2 26r 6 2r 2 7r 3 3r 2 6r 3 5r 2 30r 6
167r 2 14r 6 11r 4 6r 6 8r 2 46r 6 164r 2 11r 6 2r 4 30r 6 12r 2
33r 6 160r 2 11r 6 1r 4 36r 6 26r 2 18r 6 157r 2 10r 6 1r 4
39r 1 12r 6 2r 5 10r 6 4r 2 13r 6 155r 2 9r 6 1r 4 41r 1 13r 6
1r 5 15r 6 2r 2 12r 6 151r 2 10r 6 1r 4 42r 1 12r 6 2r 5 17r 6
2r 2 11r 6 149r 2 10r 6 4 44r 1 12r 6 2r 5 19r 6 2r 2 10r 6
147r 2 9r 6 1r 4 44r 1 14r 6 2r 5 20r 6 1r 2 10r 6 145r 2 9r 6
4 45r 6 1 14r 6 2r 5 22r 6 1r 2 9r 6 143r 2 9r 4 46r 6 1 16r 6
2r 5 22r 6 1r 2 10r 6 140r 2 8r 6 4 45r 6 1 18r 6 3r 5 22r 6
1r 2 2r 3 2 6r 6 138r 2 8r 6 4 45r 6 1 20r 6 2r 5 23r 6 1r 2
1r 3 1r 2 6r 6 136r 2 8r 6 4 44r 6 1 24r 6 2r 5 22r 6 1r 2 1r 3
1r 2 6r 6 134r 2 8r 6 4 44r 6 1 26r 6 2r 5 22r 6 1r 2 3 1r 2
7r 6 132r 2 9r 4 43r 6 1 29r 6 2r 5 22r 6 1r 2 3 1r 2 7r 6 130r 2
9r 4 43r 6 1 31r 6 2r 5 22r 6 2 3 2r 2 7r 6 128r 2 9r 6 4 41r 6
1r 1 34r 6 1r 5 22r 6 2 3 2r 2 7r 6 126r 2 9r 6 4 41r 6 1r 1
37r 6 5 22r 6 2 3 1r 2 8r 6 124r 2 10r 4 41r 6 1 40r 6 1r 5
21r 2 3 2r 2 8r 6 122r 2 10r 6 4 40r 6 1 42r 6 1r 5 20r 6 2
3 1r 2 9r 6 121r 2 10r 4 41r 1 44r 6 1r 5 20r 6 2 3 1r 2 9r 6
119r 2 10r 6 4 40r 1 46r 6 1r 5 19r 6 2 3 1r 2 10r 6 117r 2
11r 4 40r 6 1 46r 6 1r 5 20r 6 2 3 1r 2 10r 6 116r 2 11r 4 39r 6
1 47r 6 1r 5 21r 2 1r 3 2 10r 6 115r 2 11r 6 4 38r 6 1 49r 6
5 21r 6 2 3 2 11r 6 113r 2 12r 6 4 37r 6 1 50r 6 1r 5 21r 6
2 13r 6 112r 2 12r 4 37r 6 1 51r 6 1r 5 21r 6 2 13r 6 111r 2
9r 3 2 1r 6 4 36r 6 1 53r 6 5 22r 2 14r 6 110r 2 8r 3 1r 2 1r 6
4 35r 6 1 54r 6 1r 5 21r 6 2 14r 6 108r 2 9r 3 1r 2 6 1r 4 35r 1
55r 6 1r 5 21r 6 2 14r 6 108r 2 8r 3 2r 2 6 1r 4 34r 6 1 56r 6
5 22r 6 2 14r 6 110r 2 5r 3 2r 2 6 4 35r 6 1 56r 5 23r 6 2 14r 6
107r 1 2r 6 3r 2 2r 3 2 6 1r 4 35r 6 1 55r 6 5 24r 6 2 14r 6
105r 1 9r 6 4r 4 35r 6 1 55r 6 5 24r 6 2 14r 6 105r 1 10r 3
1 6 1r 4 35r 6 1 54r 6 5 26r 2 15r 6 103r 1 10r 3 2r 1 6 4 36r 1
54r 6 5 25r 6 1r 2 14r 6 103r 1 10r 3 2r 6 4 37r 6 1 53r 6 5
25r 6 1r 2 9r 6 107r 1 11r 3 1r 1 6 4 39r 6 1 50r 6 5 27r 6
2 4r 6 6r 1 3r 6 101r 1 11r 3 1r 1 6 4 39r 6 1r 1 49r 6 5 27r 6
7r 1 8r 6 101r 1 11r 3 1r 1 6 4 40r 6 1 49r 6 5 28r 6 2r 1 12r 6
100r 1 12r 3 1 1r 6 4 41r 6 1 47r 6 5 29r 6 1 15r 6 99r 1 12r 3
1 1r 4 42r 6 1 47r 6 5 29r 6 1 15r 6 98r 1 13r 3 1 1r 4 43r 1
47r 5 31r 1 15r 6 98r 1 13r 3 1 1r 4 43r 6 1 45r 6 5 31r 1 15r 6
97r 1 14r 3 1 6 4 44r 1 45r 5 32r 6 1 15r 6 96r 1 16r 6 4 45r 6
1 42r 6 5 32r 1 16r 6 96r 1 16r 6 4 46r 6 3r 1 37r 6 5 33r 1
16r 6 95r 1 18r 4 46r 6 5r 1 35r 6 5 33r 1 16r 6 95r 1 18r 4
47r 6 3r 1 6 3r 1 2r 6 2r 1 24r 6 5 33r 6 1 17r 6 93r 1 19r 4
48r 6 2r 1 1r 6 9r 1 23r 5 34r 6 1 17r 6 93r 1 19r 4 49r 6 1r 1
2r 6 9r 1 21r 6 5 34r 6 1 17r 6 93r 1 18r 6 4 49r 6 1r 1 3r 6
11r 1 17r 6 5 35r 6 1 17r 6 92r 1 19r 6 4 50r 6 1 3r 6 8r 1
6 5r 1 12r 5 37r 6 1 18r 6 91r 1 19r 6 4 51r 6 1 3r 6 6r 1 6r 6
2r 1 8r 6 5 38r 6 1 18r 6 90r 1 21r 4 51r 6 1 4r 6 4r 1 13r 6
3r 1 5 39r 6 1 1r 3 1 16r 6 90r 1 21r 4 52r 6 1 5r 6 1 17r 6
5 41r 6 1 3 1r 1 16r 6 90r 1 20r 6 4 51r 6 1r 1 23r 5 43r 6
1 3 1r 1 17r 6 88r 1 21r 6 4 51r 6 1 23r 5 44r 6 1 3 1r 1 17r 6
88r 1 21r 6 4 51r 6 1 21r 5 46r 6 1 3 1r 1 17r 6 87r 1 22r 6
4 51r 6 1 20r 5 46r 6 1 3 2r 1 17r 6 87r 1 22r 6 4 50r 6 1r 1
18r 5 48r 6 1 3 2r 1 17r 6 87r 1 23r 4 50r 6 1 18r 5 49r 6 1
3 1r 1 18r 6 87r 1 23r 6 4 48r 6 1r 1 16r 5 51r 6 1 1r 3 1 18r 6
86r 1 24r 6 4 48r 6 1 16r 5 52r 6 1 22r 6 85r 1 24r 6 4 47r 6
1 16r 6 5 52r 6 1 22r 6 85r 1 25r 4 48r 6 2r 1 13r 5 52r 6 1r 1
22r 6 84r 1 26r 4 47r 6 1r 1 14r 6 5 52r 6 1 23r 6 84r 1 26r 6
4 45r 6 1 14r 6 2r 5 52r 6 1 23r 6 84r 1 26r 6 4 45r 6 1 15r 6
5 52r 6 1r 1 23r 6 83r 1 27r 6 4 44r 6 1 16r 6 5 52r 6 1 25r 6
82r 1 28r 4 44r 6 1 17r 5 52r 6 1 25r 6 82r 1 28r 4 43r 6 1r 1
17r 6 5 50r 6 1r 1 25r 6 81r 1 29r 4 43r 6 1 18r 6 5 50r 6 1
26r 6 81r 1 29r 6 4 42r 6 1 18r 6 5 50r 6 1 26r 6 81r 1 26r 3
1r 1 1r 4 42r 6 1 18r 6 5 49r 6 1r 1 27r 6 80r 1 26r 3 2r 1
6 4 41r 6 1 6r 3 4r 1 6r 6 5 49r 6 1 28r 6 79r 1 27r 3 3r 6
4 40r 6 1 6r 3 6r 1 5r 6 5 49r 6 1 28r 6 79r 1 28r 3 2r 1 4
40r 6 1 5r 3 8r 1 5r 5 48r 6 1 29r 6 79r 1 29r 3 1r 1 6 4 39r 6
1 4r 3 10r 1 4r 5 48r 6 1 29r 6 78r 1 30r 3 2r 1 4 38r 6 1 5r 3
11r 1 3r 5 47r 6 1 30r 6 78r 1 31r 3 1r 1 4 38r 6 1 4r 3 12r 1
3r 6 5 45r 6 1r 1 31r 6 77r 1 32r 3 1 6 4 37r 6 1 4r 3 13r 1
2r 6 5 45r 6 1 32r 6 77r 1 35r 4 37r 6 1 3r 3 14r 1 2r 6 5 44r 6
1 33r 6 77r 1 35r 6 4 35r 6 1 4r 3 15r 1 1r 6 5 43r 6 1r 1 1r 3
1r 1 29r 6 77r 1 35r 6 4 35r 6 1 3r 3 16r 1 2r 5 43r 6 1 1r 3
1r 1 30r 6 77r 1 36r 6 4 34r 6 1 3r 3 17r 1 1r 5 42r 6 1 1r 3
2r 1 30r 6 77r 1 37r 4 33r 6 1r 1 3r 3 17r 1 1r 5 41r 6 1r 1
3 2r 1 31r 6 77r 1 37r 6 4 32r 6 1 3 1r 1 2r 3 16r 1 1r 5 41r 6
1 3 3r 1 31r 6 77r 1 38r 4 32r 6 1 3 1r 1 2r 3 16r 1 1r 6 5
39r 6 1 1r 3 2r 1 32r 6 77r 1 38r 6 4 30r 6 1r 1 3 1r 1 2r 3
16r 1 2r 5 38r 6 1r 1 1r 3 1r 1 33r 6 78r 1 38r 6 4 29r 6 1
3 2r 1 2r 3 15r 1 3r 6 5 36r 6 1r 1 2r 3 1r 1 33r 6 78r 1 39r 6
4 27r 6 1r 1 3 2r 1 1r 3 16r 1 4r 6 5 34r 6 1r 1 2r 3 1r 1 34r 6
78r 1 39r 6 1r 4 26r 6 1 3 3r 1 3 16r 1 5r 6 5 33r 6 1r 1 3r 3
1 34r 6 79r 1 40r 6 1r 4 24r 6 1r 1 3 2r 1 1r 3 16r 1 3r 3 1
1r 6 5 31r 6 1r 1 40r 6 80r 1 41r 6 1r 4 21r 6 1r 1 1r 3 1r 1
3 18r 1 2r 3 1r 1 1r 6 5 30r 6 1r 1 41r 6 80r 1 37r 3 3r 1 6
1r 4 18r 6 2r 1 5r 3 19r 1 1r 3 2r 1 1r 6 5 27r 6 2r 1 41r 6
81r 1 37r 3 4r 1 1r 6 1r 4 14r 6 3r 1 5r 3 20r 1 1r 3 3r 1 1r 6
5 25r 6 2r 1 42r 6 82r 1 36r 3 5r 1 1r 6 2r 4 8r 6 6r 1 4r 3
23r 1 3 4r 1 6 1r 5 23r 6 1r 1 43r 6 83r 1 38r 3 3r 1 3r 6 14r 1
6r 3 23r 1 1r 3 4r 1 6 1r 5 20r 6 2r 1 43r 6 84r 1 40r 3 2r 1
5r 6 8r 1 8r 3 25r 1 1r 3 4r 1 6 3r 5 15r 6 2r 1 45r 6 85r 1
66r 3 26r 1 1r 3 4r 1 1r 6 2r 5 13r 6 1r 1 46r 6 87r 1 53r 3
2r 1 9r 3 26r 1 2r 3 4r 1 1r 6 2r 5 5r 6 6r 1 46r 6 88r 1 50r 3
4r 1 10r 3 26r 1 3r 3 5r 1 1r 6 11r 1 47r 6 91r 1 47r 3 5r 1
11r 3 26r 1 3r 3 6r 1 58r 6 93r 1 46r 3 5r 1 14r 3 22r 1 10r 3
13r 1 44r 6 96r 1 73r 3 11r 1 13r 3 13r 1 42r 6 100r 1 99r 3
9r 1 42r 6 104r 1 148r 6 109r 1 142r 6 115r 1 136r 6 121r 1
131r 6 126r 1 59r 6 6r 1 58r 6 133r 1 52r 6 12r 1 50r 6 141r 1
45r 6 19r 1 40r 6 154r 1 30r 6 32r 1 31r 6 168r 1 9r 6 52r 1
16r 6 33991r 2 10r 6 236r 2 25r 6 225r 2 40r 6 211r 2 58r 6
193r 2 68r 6 184r 2 32r 3 15r 2 25r 6 178r 2 34r 3 16r 2 27r 6
173r 2 36r 3 6r 2 3 8r 2 29r 6 169r 2 18r 6 1r 2 1r 6 5r 4 6
8r 2 48r 6 165r 2 13r 6 4r 4 22r 6 9r 2 39r 6 162r 2 11r 6 2r 4
31r 6 17r 2 29r 6 159r 2 10r 6 1r 4 36r 6 2r 1 10r 6 17r 2 14r 6
156r 2 10r 6 1r 4 39r 6 1r 1 10r 6 5r 5 11r 6 2r 2 13r 6 153r 2
10r 6 4 42r 6 1 10r 6 2r 5 17r 6 1r 2 12r 6 151r 2 9r 6 1r 4
43r 1 11r 6 2r 5 19r 6 2r 2 10r 6 148r 2 10r 6 4 45r 1 11r 6
2r 5 21r 6 1r 2 11r 6 145r 2 10r 4 45r 6 1 13r 6 5 25r 6 2 10r 6
143r 2 9r 6 4 45r 6 1 14r 6 5 26r 6 2 10r 6 141r 2 9r 6 4 45r 6
1 16r 6 5 26r 6 2 10r 6 139r 2 9r 6 4 44r 6 1r 1 18r 5 27r 6
2 10r 6 137r 2 9r 4 45r 6 1 21r 6 5 26r 6 2 10r 6 135r 2 9r 4
44r 6 1 24r 6 5 26r 6 2 2r 3 2 6r 6 133r 2 9r 6 4 43r 1 28r 6
1r 5 24r 6 2 1r 3 1r 2 6r 6 131r 2 9r 6 4 42r 6 1 30r 6 1r 5
23r 6 1r 2 3 2r 2 6r 6 129r 2 9r 6 4 42r 6 1 32r 6 1r 5 23r 6
1r 2 3 1r 2 7r 6 127r 2 10r 4 42r 6 1 34r 6 5 24r 6 2 3 2r 2
7r 6 125r 2 10r 4 42r 6 1 36r 6 1r 5 22r 6 1r 2 3 1r 2 9r 6
122r 2 10r 6 4 41r 6 1 38r 6 1r 5 22r 6 1r 3 2r 2 9r 6 121r 2
10r 4 41r 6 1 40r 6 2r 5 21r 6 2 3 1r 2 9r 6 120r 2 11r 4 40r 6
1r 1 41r 6 2r 5 20r 6 1r 2 3 1r 2 9r 6 118r 2 11r 6 4 40r 6
1 43r 6 1r 5 21r 6 2 3 1r 2 10r 6 117r 2 11r 4 40r 6 1 44r 6
1r 5 22r 6 2 3 1r 2 10r 6 115r 2 11r 6 4 39r 6 1 45r 6 1r 5
23r 2 3 1r 2 11r 6 113r 2 12r 6 4 38r 6 1 47r 6 1r 5 22r 6 2
3 1r 2 11r 6 112r 2 12r 4 38r 6 1 48r 6 1r 5 22r 6 2 3 1r 2
11r 6 111r 2 12r 6 4 36r 6 1r 1 50r 6 5 23r 6 2 3 2 12r 6 110r 2
12r 6 4 35r 6 1r 1 51r 6 1r 5 22r 6 2 3 2 13r 6 108r 2 12r 6
1r 4 35r 6 1 53r 6 5 23r 6 2 14r 6 108r 2 12r 6 1r 4 35r 6 1
53r 6 5 23r 6 2 15r 6 110r 2 5r 3 1r 2 1r 6 4 35r 6 1 54r 6
5 24r 6 2 14r 6 107r 1 2r 6 5r 3 2 1r 6 1r 4 35r 6 1 54r 6 5
24r 6 2 15r 6 105r 1 6r 6 7r 4 35r 6 1 53r 6 1r 5 25r 6 2 14r 6
105r 1 9r 3 1r 6 2r 4 35r 6 1 53r 6 5 26r 6 2 15r 6 103r 1 10r 3
2r 1 6 4 35r 6 1 52r 6 5 27r 6 2 15r 6 103r 1 10r 3 2r 1 4 37r 6
1 51r 6 5 28r 6 2 10r 6 106r 1 11r 3 2r 6 4 38r 6 1 50r 6 5
28r 6 2 4r 6 5r 1 4r 6 101r 1 11r 3 1r 1 6 4 39r 6 1 49r 6 5
29r 6 4r 1 10r 6 101r 1 11r 3 1r 1 6 4 40r 6 1 47r 6 5 31r 6
1 14r 6 99r 1 12r 3 1r 1 6 4 41r 6 1 46r 6 5 30r 6 1 15r 6 99r 1
12r 3 1r 1 6 4 41r 6 1 46r 6 5 30r 6 1 15r 6 98r 1 13r 3 1r 1
6 4 42r 1 45r 6 5 31r 6 1 15r 6 98r 1 13r 3 1 1r 6 4 42r 6 1
44r 6 5 31r 6 1 16r 6 96r 1 14r 3 1 1r 6 4 43r 1 43r 6 5 32r 6
1 16r 6 96r 1 14r 3 1 1r 6 4 44r 6 1 41r 6 5 32r 6 1 16r 6 96r 1
14r 3 1 1r 6 4 46r 6 3r 1 35r 6 5 33r 6 1 16r 6 95r 1 15r 3
1 1r 6 4 46r 6 5r 1 33r 5 34r 6 1 17r 6 94r 1 18r 4 48r 6 2r 1
6 4r 1 1r 6 1r 1 24r 6 5 34r 6 1 17r 6 93r 1 19r 4 49r 6 1r 1
2r 6 8r 1 22r 5 35r 6 1 17r 6 93r 1 19r 4 50r 6 1 3r 6 9r 1
19r 6 5 35r 6 1 17r 6 92r 1 20r 4 50r 6 1 3r 6 12r 1 15r 6 5
36r 6 1 18r 6 91r 1 20r 4 50r 6 1 4r 6 7r 1 2r 6 4r 1 10r 6
5 36r 6 1 19r 6 91r 1 20r 4 51r 6 1 3r 6 6r 1 18r 5 38r 6 1
19r 6 90r 1 21r 4 51r 6 1 4r 6 4r 1 15r 6 1r 5 40r 6 1 19r 6
90r 1 21r 4 51r 6 1 6r 6 1r 1 16r 5 42r 6 1 20r 6 88r 1 22r 4
51r 6 1 24r 5 43r 6 1 20r 6 88r 1 22r 4 51r 6 1 22r 5 44r 6
1 1r 3 1r 1 17r 6 88r 1 22r 4 51r 6 1 21r 5 45r 6 1 3 2r 1 17r 6
87r 1 23r 4 50r 6 1r 1 19r 5 47r 6 1 3 2r 1 17r 6 87r 1 23r 4
50r 6 1 19r 5 48r 6 1 3 2r 1 17r 6 87r 1 23r 4 50r 6 1 17r 5
50r 6 1 3 1r 1 19r 6 85r 1 24r 6 4 48r 6 1 17r 5 51r 6 1 3 1r 1
19r 6 85r 1 24r 6 4 47r 6 1r 1 16r 5 51r 6 1 1r 3 1r 1 19r 6
85r 1 25r 4 47r 6 1 16r 5 52r 6 1 1r 3 1r 1 19r 6 85r 1 25r 4
48r 6 3r 1 11r 6 5 52r 6 1 1r 3 1 20r 6 84r 1 26r 6 4 46r 6
1 11r 6 1r 1 1r 5 53r 6 1 23r 6 84r 1 26r 6 4 45r 6 1 14r 6
1r 5 53r 6 1 23r 6 83r 1 27r 6 4 45r 6 1 14r 6 1r 5 52r 6 1
25r 6 82r 1 28r 4 44r 6 1 16r 6 5 52r 6 1 25r 6 82r 1 28r 4
44r 6 1 17r 5 51r 6 1r 1 25r 6 82r 1 28r 6 4 42r 6 1r 1 17r 6
5 50r 6 1 26r 6 81r 1 29r 6 4 42r 6 1 18r 6 5 50r 6 1 26r 6
81r 1 30r 4 42r 6 1 18r 6 5 49r 6 1r 1 27r 6 80r 1 30r 4 42r 6
1 18r 6 5 49r 6 1 28r 6 79r 1 31r 6 4 40r 6 1 7r 3 4r 1 6r 6
5 49r 6 1 28r 6 79r 1 28r 3 1r 1 4 40r 6 1 5r 3 7r 1 5r 6
5 48r 6 1r 1 28r 6 79r 1 28r 3 2r 1 6 4 39r 6 1 5r 3 8r 1 4r 6
5 48r 6 1 29r 6 78r 1 29r 3 3r 1 4 38r 6 1r 1 4r 3 10r 1 3r 6
5 47r 6 1r 1 29r 6 78r 1 30r 3 2r 1 4 38r 6 1 5r 3 11r 1 3r 5
46r 6 1r 1 31r 6 77r 1 31r 3 1r 1 6 4 37r 6 1 4r 3 12r 1 3r 5
46r 6 1 32r 6 77r 1 31r 3 2r 1 4 37r 6 1 3r 3 14r 1 2r 6 5 44r 6
1r 1 32r 6 77r 1 32r 3 1r 1 6 4 36r 6 1 3r 3 14r 1 2r 6 5 43r 6
1r 1 33r 6 77r 1 33r 3 1 6 4 35r 6 1 3r 3 16r 1 1r 6 5 43r 6
1 34r 6 77r 1 36r 4 35r 6 1 3r 3 16r 1 1r 6 5 42r 6 1r 1 34r 6
77r 1 36r 6 4 34r 6 1 3r 3 16r 1 2r 5 42r 6 1 1r 3 1r 1 31r 6
77r 1 37r 4 33r 6 1 4r 3 17r 1 1r 5 41r 6 1r 1 3 2r 1 31r 6
77r 1 37r 6 4 32r 6 1 3 1r 1 2r 3 16r 1 1r 5 40r 6 1r 1 3 2r 1
32r 6 77r 1 38r 6 4 30r 6 1r 1 3 1r 1 2r 3 16r 1 1r 6 5 39r 6
1 3 3r 1 32r 6 77r 1 39r 6 4 29r 6 1 1r 3 1r 1 2r 3 16r 1 1r 6
5 38r 6 1 3 3r 1 33r 6 77r 1 39r 6 4 29r 6 1 3 2r 1 2r 3 15r 1
3r 6 5 36r 6 1 1r 3 3r 1 33r 6 78r 1 39r 6 4 27r 6 1r 1 3 2r 1
1r 3 15r 1 4r 6 1r 5 34r 6 1r 1 1r 3 2r 1 34r 6 78r 1 40r 6
4 26r 6 1 3 2r 1 1r 3 16r 1 2r 3 1 1r 6 5 33r 6 1r 1 2r 3 1r 1
35r 6 78r 1 41r 6 4 23r 6 1r 1 3 3r 1 1r 3 16r 1 2r 3 1r 1 1r 6
5 31r 6 1r 1 2r 3 1r 1 35r 6 79r 1 42r 6 1r 4 20r 6 1r 1 1r 3
2r 1 1r 3 17r 1 2r 3 1r 1 1r 6 5 29r 6 2r 1 3r 3 1 36r 6 80r 1
42r 6 2r 4 16r 6 2r 1 1r 3 2r 1 1r 3 18r 1 2r 3 2r 1 1r 6 5
27r 6 2r 1 42r 6 80r 1 38r 3 3r 1 1r 6 1r 4 14r 6 2r 1 1r 3
2r 1 1r 3 20r 1 1r 3 3r 1 6 1r 5 25r 6 1r 1 43r 6 81r 1 38r 3
5r 1 1r 6 2r 4 8r 6 4r 1 1r 3 2r 1 1r 3 4r 1 6 1r 5
22r 6 2r 1 43r 6 83r 1 38r 3 4r 1 3r 6 12r 1 1r 3 3r 1 3 24r 1
1r 3 4r 1 6 2r 5 19r 6 2r 1 44r 6 83r 1 39r 3 3r 1 6r 6 5r 1
4r 3 4r 1 1r 3 24r 1 1r 3 4r 1 1r 6 2r 5 15r 6 2r 1 45r 6 85r 1
41r 3 1r 1 12r 3 3r 1 6r 3 24r 1 2r 3 4r 1 1r 6 2r 5 12r 6 2r 1
46r 6 86r 1 54r 3 3r 1 8r 3 25r 1 2r 3 5r 1 1r 6 3r 5 3r 6 6r 1

47r 6 88r 1 51r 3 5r 1 9r 3 24r 1 3r 3 6r 1 1r 6 10r 1 48r 6
90r 1 49r 3 6r 1 10r 3 24r 1 3r 3 7r 1 58r 6 93r 1 50r 3 1r 1
15r 3 20r 1 6r 3 8r 1 54r 6 96r 1 75r 3 9r 1 10r 3 10r 1 48r 6
100r 1 97r 3 6r 1 47r 6 104r 1 148r 6 109r 1 142r 6 115r 1 136r 6
121r 1 131r 6 126r 1 59r 6 6r 1 58r 6 132r 1 52r 6 13r 1 50r 6
141r 1 44r 6 20r 1 41r 6 153r 1 30r 6 32r 1 31r 6 173r 1 3r 6
52r 1 16r 6 33997r 2 6 244r 2 20r 6 229r 2 34r 6 216r 2 51r 6
200r 2 65r 6 187r 2 31r 3 14r 2 25r 6 180r 2 33r 3 15r 2 27r 6
175r 2 35r 3 16r 2 28r 6 171r 2 25r 6 8r 2 15r 3 2r 2 31r 6
167r 2 14r 6 11r 4 11r 6 8r 2 41r 6 164r 2 12r 6 1r 4 30r 6
13r 2 32r 6 160r 2 11r 6 2r 4 34r 6 4r 1 2r 6 1r 1 1r 6 16r 2
16r 6 158r 2 10r 6 2r 4 37r 6 1r 1 9r 6 3r 5 12r 6 3r 2 13r 6
154r 2 10r 6 1r 4 40r 6 1r 1 9r 6 2r 5 17r 6 1r 2 12r 6 152r 2
10r 6 1r 4 41r 6 1 10r 6 2r 5 19r 6 2r 2 11r 6 149r 2 10r 6
4 42r 6 1r 1 10r 6 1r 5 22r 6 2r 2 10r 6 147r 2 9r 6 1r 4 43r 6
1 12r 6 5 25r 6 2 10r 6 145r 2 9r 6 4 44r 6 1r 1 12r 6 5 26r 6
2 10r 6 142r 2 10r 6 4 44r 6 1 15r 6 5 26r 6 2 11r 6 139r 2
10r 6 4 44r 6 1 16r 6 5 27r 6 2 11r 6 137r 2 10r 4 44r 6 1 19r 6
5 27r 6 2 11r 6 135r 2 10r 4 44r 6 1 21r 6 5 27r 6 2 11r 6 133r 2
10r 4 44r 1 24r 6 1r 5 26r 6 2 11r 6 131r 2 10r 4 43r 6 1 27r 6
5 26r 6 2 11r 6 129r 2 10r 4 42r 6 1 31r 6 5 25r 6 2 1r 3 1r 2
7r 6 127r 2 10r 6 4 41r 6 1 33r 5 26r 6 2 1r 3 2 8r 6 125r 2
10r 6 4 41r 6 1 34r 6 5 25r 6 1r 2 3 1r 2 8r 6 124r 2 10r 4
42r 1 36r 6 1r 5 24r 6 2 3 1r 2 9r 6 122r 2 10r 6 4 41r 1 38r 6
1r 5 24r 6 2 3 1r 2 9r 6 120r 2 11r 4 41r 6 1 39r 6 1r 5 23r 6
2 3 2r 2 9r 6 118r 2 11r 6 4 40r 6 1 40r 6 2r 5 23r 6 2 3 1r 2
10r 6 117r 2 11r 4 40r 6 1 42r 6 1r 5 23r 6 2 3 1r 2 11r 6 115r 2
12r 4 39r 6 1 44r 6 1r 5 23r 6 2 3 1r 2 11r 6 113r 2 12r 6 4
38r 6 1 45r 6 1r 5 24r 2 3 1r 2 11r 6 113r 2 12r 6 4 37r 6 1
47r 6 5 24r 6 2 3 1r 2 11r 6 111r 2 12r 6 4 37r 6 1 48r 6 5
24r 6 2 3 1r 2 12r 6 110r 2 12r 6 4 36r 6 1 50r 6 5 24r 6 2
3 2 12r 6 109r 2 13r 6 4 35r 6 1 51r 6 5 24r 6 2 3 1r 2 12r 6
108r 2 12r 6 1r 4 35r 6 1 51r 6 5 25r 6 3 1r 2 13r 6 112r 2
7r 6 1r 4 34r 6 1 52r 6 5 25r 6 2 3 2 13r 6 107r 1 1r 6 6r 2
3r 6 4 35r 6 1 52r 6 5 26r 2 16r 6 105r 1 10r 6 3r 4 35r 6 1
51r 6 5 27r 6 2 15r 6 105r 1 12r 6 1r 4 35r 6 1 51r 6 5 27r 6
2 15r 6 104r 1 11r 3 1 1r 6 4 35r 6 1r 1 50r 6 5 28r 2 16r 6
103r 1 10r 3 1r 1 6 1r 4 36r 6 1r 1 49r 6 5 28r 6 2 11r 6 106r 1
11r 3 1r 1 6 4 39r 1 48r 6 1r 5 28r 6 2 5r 6 6r 1 3r 6 101r 1
11r 3 1r 1 6 4 39r 6 1 47r 6 1r 5 29r 6 7r 1 8r 6 100r 1 12r 3
1r 1 6 4 40r 6 1 46r 6 5 31r 6 1r 1 14r 6 99r 1 12r 3 1r 1 6
4 41r 6 1 44r 6 1r 5 31r 1 16r 6 99r 1 12r 3 1r 1 4 42r 6 1
44r 6 5 32r 1 16r 6 98r 1 13r 3 1r 1 4 43r 1 44r 6 5 32r 6 1
16r 6 97r 1 13r 3 1r 1 4 43r 6 1 42r 6 5 33r 6 1 16r 6 96r 1
14r 3 1r 1 4 44r 6 1 41r 6 5 33r 6 1 16r 6 96r 1 14r 3 1r 1
4 46r 6 1 39r 6 5 33r 6 1 16r 6 95r 1 15r 3 1 1r 4 47r 6 5r 1
32r 6 5 34r 6 1 17r 6 94r 1 15r 3 1 1r 4 47r 6 7r 1 30r 6 5
34r 6 1 17r 6 94r 1 15r 3 1 1r 4 48r 6 2r 1 1r 6 4r 1 6 1r 1
24r 5 35r 6 1 17r 6 93r 1 16r 3 1 1r 4 48r 6 2r 1 2r 6 8r 1
21r 6 5 35r 6 1 18r 6 92r 1 19r 4 49r 6 2r 1 2r 6 9r 1 18r 6
5 36r 1 19r 6 91r 1 20r 4 50r 6 1 4r 6 13r 1 13r 5 36r 6 1 19r 6
91r 1 20r 4 50r 6 1 5r 6 4r 1 5r 6 3r 1 10r 5 37r 6 1 19r 6
91r 1 20r 4 51r 6 1 4r 6 4r 1 19r 5 38r 6 1 19r 6 90r 1 21r 4
51r 6 1 5r 6 3r 1 15r 5 42r 6 1 20r 6 89r 1 21r 4 51r 6 1 25r 5
42r 6 1 20r 6 88r 1 22r 4 50r 6 1r 1 24r 5 42r 6 1 21r 6 88r 1
22r 4 50r 6 1r 1 22r 5 44r 6 1 21r 6 88r 1 22r 4 50r 6 1 21r 5
46r 6 1 21r 6 87r 1 23r 4 50r 6 1 19r 6 5 47r 6 1 3 1r 1 18r 6
87r 1 23r 6 4 49r 6 1 18r 5 49r 6 1 3 1r 1 19r 6 86r 1 23r 6
4 48r 6 1r 1 17r 5 49r 6 1 3 2r 1 19r 6 85r 1 24r 6 4 48r 6
1 17r 5 50r 6 1 3 2r 1 19r 6 85r 1 25r 4 47r 6 1 16r 6 5 51r 6
1 3 2r 1 19r 6 85r 1 25r 4 47r 6 1 6 2r 1 12r 5 52r 6 1 3 1r 1
20r 6 84r 1 26r 6 4 47r 6 1r 1 1r 6 7r 1 3r 6 5 52r 6 1 3 1r 1
20r 6 84r 1 26r 6 4 46r 6 1 12r 6 1 1r 5 52r 6 1 1r 3 1r 1 20r 6
84r 1 27r 4 45r 6 1 14r 6 5 53r 6 1 1r 3 1 22r 6 82r 1 28r 6 4
45r 6 1 14r 6 5 53r 6 1 1r 3 1 22r 6 82r 1 28r 6 4 43r 6 1 16r 6
5 51r 6 1r 1 25r 6 82r 1 28r 6 4 43r 6 1 16r 6 5 51r 6 1 26r 6
81r 1 29r 6 4 42r 6 1 18r 5 51r 6 1 26r 6 81r 1 30r 4 42r 6
1 18r 5 50r 6 1r 1 27r 6 80r 1 30r 4 42r 6 1 18r 5 50r 6 1 28r 6
79r 1 31r 6 4 41r 6 1 18r 6 5 49r 6 1 28r 6 79r 1 32r 4 40r 6
1 6r 3 5r 1 6r 6 5 48r 6 1r 1 28r 6 79r 1 32r 4 40r 6 1 5r 3
8r 1 4r 6 5 48r 6 1 29r 6 78r 1 29r 3 1r 1 1r 6 4 39r 6 1 4r 3
10r 1 3r 6 5 47r 6 1r 1 29r 6 78r 1 29r 3 2r 1 1r 4 38r 6 1
5r 3 10r 1 3r 6 5 47r 6 1 31r 6 77r 1 30r 3 2r 1 6 4 37r 6 1
4r 3 12r 1 3r 5 46r 6 1r 1 31r 6 77r 1 31r 3 2r 1 4 37r 6 1
3r 3 13r 1 3r 5 45r 6 1r 1 32r 6 76r 1 32r 3 2r 1 6 4 36r 6
1 3r 3 14r 1 2r 5 45r 6 1 33r 6 76r 1 33r 3 1r 1 1r 4 35r 6
1r 1 2r 3 15r 1 2r 6 5 43r 6 1 34r 6 76r 1 34r 3 1r 1 4 35r 6
1 3r 3 16r 1 1r 6 5 42r 6 1r 1 34r 6 76r 1 35r 3 1 6 4 34r 6
1 3r 3 16r 1 1r 6 5 42r 6 1 36r 6 75r 1 38r 4 33r 6 1r 1 2r 3
17r 1 2r 5 41r 6 1r 1 36r 6 75r 1 38r 6 4 32r 6 1 4r 3 16r 1
2r 5 41r 6 1 37r 6 76r 1 38r 6 4 31r 6 1 3 1r 1 1r 3 17r 1 1r 5
40r 6 1r 1 1r 3 1r 1 33r 6 76r 1 38r 6 4 30r 6 1r 1 3 1r 1 1r 3
17r 1 1r 6 5 38r 6 1r 1 3 2r 1 34r 6 76r 1 39r 6 4 29r 6 1 3
2r 1 1r 3 17r 1 1r 6 5 37r 6 1r 1 3 3r 1 33r 6 77r 1 40r 6 4
27r 6 1r 1 3 2r 1 1r 3 16r 1 3r 6 5 35r 6 1r 1 3 3r 1 34r 6
77r 1 40r 6 1r 4 26r 6 1 1r 3 1r 1 2r 3 15r 1 4r 6 5 34r 6 1r 1
3 4r 1 34r 6 78r 1 40r 6 1r 4 24r 6 1r 1 3 1r 1 2r 3 16r 1 2r 3
1 1r 6 5 32r 6 1r 1 1r 3 3r 1 35r 6 78r 1 41r 6 1r 4 22r 6 1r 1
3 2r 1 1r 3 17r 1 1r 3 2r 1 6 1r 5 30r 6 1r 1 2r 3 2r 1 36r 6
78r 1 42r 6 2r 4 19r 6 1r 1 3 2r 1 1r 3 18r 1 1r 3 2r 1 1r 6
5 29r 6 1r 1 3r 3 2r 1 35r 6 80r 1 43r 6 1r 4 14r 6 4r 1 3 3r 1
3 19r 1 2r 3 2r 1 1r 6 5 27r 6 1r 1 3r 3 2r 1 36r 6 80r 1 41r 3
1 2r 6 1r 4 7r 6 8r 1 3 3r 1 3 21r 1 1r 3 2r 1 1r 6 1r 5 24r 6
2r 1 4r 3 1r 1 36r 6 81r 1 40r 3 4r 1 6 15r 1 1r 3 3r 1 1r 3
21r 1 2r 3 2r 1 1r 6 1r 5 22r 6 2r 1 44r 6 82r 1 39r 3 4r 1
3r 6 10r 1 1r 3 4r 1 1r 3 23r 1 2r 3 2r 1 1r 6 2r 5 18r 6 2r 1
45r 6 83r 1 40r 3 4r 1 13r 3 5r 1 2r 3 24r 1 2r 3 3r 1 1r 6
2r 5 14r 6 2r 1 46r 6 85r 1 41r 3 3r 1 10r 3 6r 1 3r 3 24r 1
3r 3 3r 1 2r 6 1r 5 11r 6 2r 1 47r 6 86r 1 55r 3 5r 1 5r 3 25r 1
2r 3 5r 1 1r 6 13r 1 48r 6 88r 1 52r 3 6r 1 8r 3 23r 1 4r 3
5r 1 1r 6 9r 1 49r 6 90r 1 53r 3 1r 1 12r 3 23r 1 4r 3 5r 1
59r 6 93r 1 69r 3 1r 1 1r 3 14r 1 8r 3 4r 1 57r 6 96r 1 77r 3
6r 1 11r 3 3r 1 55r 6 99r 1 153r 6 104r 1 148r 6 109r 1 142r 6
115r 1 136r 6 121r 1 131r 6 126r 1 59r 6 6r 1 57r 6 133r 1 52r 6
13r 1 50r 6 141r 1 43r 6 21r 1 40r 6 154r 1 29r 6 33r 1 31r 6
231r 1 15r 6 34246r 2 14r 6 234r 2 28r 6 222r 2 43r 6 208r 2
60r 6 191r 2 30r 3 7r 2 30r 6 183r 2 32r 3 15r 2 25r 6 178r 2
34r 3 16r 2 27r 6 173r 2 37r 3 2r 2 6r 3 5r 2 29r 6 169r 2 19r 6
8r 4 1r 6 12r 2 9r 3 2 32r 6 165r 2 13r 6 7r 4 21r 6 10r 2 36r 6
162r 2 12r 6 1r 4 33r 6 2r 1 5r 6 7r 2 28r 6 158r 2 12r 6 1r 4
36r 6 1r 1 8r 6 3r 5 2r 6 12r 2 14r 6 156r 2 11r 6 1r 4 38r 6
1 9r 6 2r 5 17r 6 1r 2 13r 6 153r 2 10r 6 1r 4 40r 6 1 9r 6
2r 5 19r 6 1r 2 12r 6 151r 2 10r 4 43r 6 1 9r 6 1r 5 22r 6 1r 2
11r 6 148r 2 10r 6 4 44r 6 1 9r 6 1r 5 24r 6 1r 2 11r 6 145r 2
10r 6 4 43r 6 1r 1 11r 6 1r 5 25r 6 1r 2 10r 6 143r 2 10r 4
45r 6 1 12r 6 1r 5 26r 6 1r 2 10r 6 141r 2 10r 4 44r 6 1 15r 6
5 27r 6 1r 2 10r 6 139r 2 9r 6 1r 4 43r 1 17r 6 1r 5 27r 6 1r 2
10r 6 137r 2 9r 6 1r 4 43r 1 20r 5 28r 6 2 11r 6 135r 2 9r 6
4 43r 6 1 22r 6 5 27r 6 2 11r 6 133r 2 9r 6 1r 4 42r 6 1 24r 6
5 27r 6 2 11r 6 131r 2 9r 6 1r 4 41r 6 1r 1 26r 6 5 27r 6 2
11r 6 129r 2 10r 6 4 41r 6 1r 1 28r 6 1r 5 26r 6 2 12r 6 126r 2
10r 6 1r 4 40r 6 1r 1 31r 6 5 25r 6 1r 2 12r 6 124r 2 10r 6
1r 4 40r 6 1r 1 33r 5 26r 6 1r 2 1r 3 2 9r 6 122r 2 11r 6 4
40r 6 1r 1 35r 5 26r 6 2 1r 3 1r 2 9r 6 120r 2 11r 6 4 40r 6
1r 1 37r 6 5 25r 6 2 3 1r 2 10r 6 118r 2 12r 6 4 40r 6 1 38r 6
1r 5 24r 6 1r 2 3 1r 2 10r 6 117r 2 11r 6 1r 4 39r 6 1 40r 6
1r 5 24r 6 2 3 1r 2 11r 6 115r 2 12r 6 4 39r 6 1 41r 6 1r 5
24r 6 1r 3 2r 2 10r 6 114r 2 13r 6 4 38r 6 1 43r 6 5 25r 6 2
3 1r 2 11r 6 113r 2 12r 6 1r 4 37r 6 1 44r 6 5 25r 6 2 3 2r 2
11r 6 111r 2 13r 6 4 36r 6 1r 1 46r 6 5 25r 6 2 3 1r 2 12r 6
110r 2 12r 6 1r 4 35r 6 1r 1 47r 6 5 25r 6 2 3 1r 2 12r 6 109r 2
13r 6 1r 4 35r 6 1 49r 6 5 25r 6 2 3 1r 2 12r 6 108r 2 12r 6
1r 4 35r 6 1 50r 6 5 25r 6 2 3 1r 2 13r 6 110r 2 9r 6 1r 4 35r 6
1 50r 6 5 26r 6 3 1r 2 13r 6 107r 1 1r 6 5r 2 4r 6 4 35r 6 1
50r 6 5 27r 6 2 3 2 14r 6 105r 1 10r 6 3r 4 35r 6 1 50r 6 5
27r 6 2 3 2 15r 6 104r 1 12r 6 1r 4 35r 6 1 50r 6 5 28r 6 2
16r 6 103r 1 14r 6 4 35r 6 1r 1 49r 5 29r 6 2 15r 6 104r 1 14r 6
4 36r 6 1 48r 6 5 29r 6 2 11r 6 3r 1 6 102r 1 14r 6 4 39r 6
1 46r 6 5 30r 6 2 6r 6 4r 1 4r 6 101r 1 14r 4 41r 6 1 45r 6
5 30r 6 2 6r 1 9r 6 99r 1 12r 3 1r 1 4 41r 6 1 44r 6 5 32r 6
3r 1 13r 6 99r 1 12r 3 1r 1 4 42r 6 1 43r 6 5 32r 6 1 16r 6
99r 1 12r 3 1r 1 4 42r 6 1 43r 6 5 32r 6 1 17r 6 97r 1 13r 3
1r 1 4 43r 6 1 41r 6 1r 5 32r 6 1 17r 6 97r 1 13r 3 1r 1 4 43r 6
1 41r 6 5 33r 6 1 17r 6 96r 1 14r 3 1r 1 4 44r 6 1r 1 39r 6
5 34r 1 18r 6 95r 1 14r 3 1r 1 4 46r 6 3r 1 35r 5 35r 1 18r 6
94r 1 15r 3 1r 1 4 46r 6 7r 1 30r 6 5 35r 1 18r 6 94r 1 15r 3
1r 1 4 47r 6 8r 1 28r 6 5 35r 1 18r 6 93r 1 16r 3 1r 1 4 48r 6
2r 1 2r 6 5r 1 24r 6 5 35r 1 19r 6 92r 1 16r 3 1r 1 4 49r 6
2r 1 3r 6 6r 1 20r 6 5 35r 6 1 19r 6 92r 1 16r 3 1r 1 6 4 48r 6
2r 1 4r 6 1r 1 1r 6 5r 1 16r 5 36r 6 1 19r 6 91r 1 17r 3 1r 1
6 4 49r 6 1r 1 4r 6 1r 1 6r 6 4r 1 11r 6 5 36r 6 1 19r 6 91r 1
18r 3 1 6 4 50r 6 1 4r 6 1r 1 10r 6 1 10r 5 38r 6 1 20r 6 89r 1
19r 3 1 6 4 50r 6 1 5r 6 1 21r 5 39r 6 1 20r 6 89r 1 19r 3 1
6 4 50r 6 1 25r 5 42r 6 1 20r 6 89r 1 21r 6 4 50r 6 1 24r 6
5 41r 6 1 21r 6 88r 1 22r 6 4 49r 6 1 24r 5 43r 6 1 21r 6 88r 1
22r 6 4 49r 6 1 22r 5 45r 6 1 21r 6 87r 1 23r 6 4 49r 6 1 20r 6
5 46r 6 1 22r 6 86r 1 23r 6 4 49r 6 1 19r 5 47r 6 1r 1 22r 6
86r 1 23r 6 4 48r 6 1r 1 18r 5 48r 6 1 23r 6 86r 1 24r 4 48r 6
1 17r 6 5 49r 6 1 1r 3 1r 1 19r 6 85r 1 25r 4 47r 6 1r 1 16r 5
51r 6 1 3 2r 1 19r 6 85r 1 25r 6 4 46r 6 1 16r 5 52r 6 1 3 1r 1
20r 6 85r 1 25r 6 4 47r 6 6r 1 8r 6 5 51r 6 1 3 2r 1 20r 6 84r 1
27r 4 47r 6 1 3r 6 6r 1 3r 5 52r 6 1 3 2r 1 20r 6 84r 1 27r 4
46r 6 1 12r 6 2r 5 52r 6 1 3 2r 1 21r 6 83r 1 27r 4 45r 6 1
14r 6 1r 5 52r 6 1 3 2r 1 21r 6 82r 1 28r 6 4 44r 6 1 15r 6
5 51r 6 1r 1 3 1r 1 22r 6 82r 1 28r 6 4 43r 6 1 16r 6 5 51r 6
1 1r 3 1r 1 22r 6 81r 1 29r 6 4 43r 6 1 16r 6 5 51r 6 1 1r 3
1 23r 6 81r 1 30r 4 42r 6 1 18r 5 51r 6 1 27r 6 80r 1 30r 6
4 41r 6 1 18r 5 50r 6 1 28r 6 80r 1 30r 6 4 41r 6 1 18r 5 50r 6
1 28r 6 79r 1 32r 4 40r 6 1 8r 3 2r 1 7r 5 49r 6 1r 1 28r 6
79r 1 32r 6 4 39r 6 1 6r 3 6r 1 5r 6 5 48r 6 1 29r 6 79r 1 32r 6
4 39r 6 1 5r 3 8r 1 4r 6 5 48r 6 1 29r 6 78r 1 34r 4 39r 6 1
4r 3 10r 1 3r 6 5 47r 6 1 31r 6 77r 1 34r 6 4 37r 6 1 5r 3 10r 1
3r 6 5 47r 6 1 31r 6 77r 1 31r 3 1r 1 1r 4 37r 6 1 4r 3 12r 1
2r 6 5 46r 6 1 32r 6 76r 1 32r 3 2r 1 6 4 36r 6 1 3r 3 14r 1
2r 5 45r 6 1r 1 32r 6 76r 1 32r 3 3r 1 4 36r 6 1 2r 3 15r 1
2r 5 44r 6 1r 1 33r 6 76r 1 33r 3 2r 1 6 4 34r 6 1r 1 2r 3 15r 1
2r 6 5 43r 6 1 35r 6 75r 1 34r 3 1r 1 1r 4 34r 6 1 3r 3 16r 1
1r 6 5 42r 6 1r 1 35r 6 75r 1 35r 3 1r 1 6 4 33r 6 1 2r 3 17r 1
1r 6 5 42r 6 1 36r 6 75r 1 36r 3 1 6 4 32r 6 1r 1 2r 3 17r 1
2r 5 41r 6 1 37r 6 75r 1 39r 6 4 31r 6 1 3r 3 17r 1 2r 5 40r 6
1r 1 37r 6 75r 1 39r 6 4 30r 6 1r 1 3r 3 17r 1 2r 5 40r 6 1
38r 6 76r 1 39r 6 4 29r 6 1 1r 3 1r 1 3 18r 1 1r 6 5 38r 6 1
39r 6 76r 1 39r 6 1r 4 27r 6 1r 1 1r 3 21r 1 1r 6 5 37r 6 1r 1
2r 3 1 35r 6 76r 1 40r 6 4 27r 6 1 1r 3 2r 1 3 18r 1 2r 5 36r 6
1r 1 1r 3 2r 1 34r 6 77r 1 41r 6 4 25r 6 1r 1 1r 3 1r 1 3 18r 1
3r 6 5 34r 6 1r 1 3 3r 1 35r 6 77r 1 42r 6 1r 4 22r 6 1r 1 1r 3
1r 1 1r 3 18r 1 4r 6 5 32r 6 1r 1 3 4r 1 35r 6 78r 1 42r 6 1r 4
20r 6 2r 1 3 1r 1 1r 3 19r 1 3 2r 1 6 1r 5 29r 6 2r 1 3 4r 1
36r 6 78r 1 43r 6 2r 4 17r 6 2r 1 3 2r 1 3 20r 1 3 2r 1 1r 6
5 29r 6 1r 1 1r 3 3r 1 36r 6 79r 1 45r 6 2r 4 12r 6 4r 1 3 2r 1
1r 3 20r 1 3 2r 1 2r 6 5 26r 6 2r 1 2r 3 2r 1 37r 6 80r 1 46r 6
3r 4 7r 6 4r 1 1r 3 2r 1 1r 3 22r 1 3 2r 1 2r 6 5 24r 6 2r 1
3r 3 2r 1 36r 6 81r 1 42r 3 2r 1 2r 6 13r 1 3 3r 1 2r 3 22r 1
1r 3 2r 1 2r 6 5 21r 6 2r 1 4r 3 2r 1 37r 6 81r 1 41r 3 5r 1
4r 6 4r 1 4r 3 3r 1 2r 3 24r 1 1r 3 2r 1 2r 6 1r 5 17r 6 3r 1
4r 3 2r 1 37r 6 83r 1 41r 3 4r 1 13r 3 3r 1 3r 3 24r 1 2r 3
2r 1 2r 6 2r 5 14r 6 2r 1 5r 3 1r 1 38r 6 84r 1 42r 3 5r 1 10r 3
4r 1 3r 3 25r 1 3r 3 1r 1 3r 6 2r 5 9r 6 3r 1 7r 3 1 38r 6 86r 1
43r 3 3r 1 10r 3 2r 1 6r 3 24r 1 11r 6 12r 1 49r 6 87r 1 69r 3
23r 1 12r 6 6r 1 52r 6 89r 1 69r 3 22r 1 70r 6 93r 1 75r 3 12r 1
71r 6 95r 1 82r 3 2r 1 71r 6 99r 1 153r 6 104r 1 148r 6 109r 1
142r 6 115r 1 136r 6 121r 1 131r 6 126r 1 58r 6 7r 1 57r 6 133r 1
51r 6 14r 1 50r 6 141r 1 42r 6 22r 1 40r 6 155r 1 27r 6 34r 1
31r 6 231r 1 15r 6 34252r 2 3r 6 242r 2 21r 6 228r 2 37r 6 213r 2
55r 6 196r 2 29r 3 1r 2 33r 6 187r 2 31r 3 15r 2 24r 6 180r 2
33r 3 16r 2 26r 6 175r 2 35r 3 5r 2 1r 3 8r 2 28r 6 171r 2 23r 6
2 2r 6 9r 2 12r 3 2r 2 31r 6 167r 2 15r 6 6r 4 6 4 1r 6 2r 4
9r 6 11r 2 37r 6 164r 2 13r 6 3r 4 28r 6 4r 1 6 6r 2 32r 6 160r 2
13r 6 1r 4 33r 6 2r 1 7r 6 11r 2 6 3r 2 17r 6 158r 2 11r 6 2r 4
36r 6 1r 1 7r 6 1r 5 8r 6 1r 5 5r 6 3r 2 13r 6 155r 2 10r 6
2r 4 38r 6 1 9r 6 5 20r 6 1r 2 12r 6 152r 2 10r 6 1r 4 41r 6
1 8r 6 5 23r 6 1r 2 12r 6 149r 2 10r 6 4 42r 6 1r 1 8r 6 5 25r 6
1r 2 11r 6 147r 2 10r 4 43r 6 1r 1 10r 5 26r 6 1r 2 11r 6 145r 2
9r 6 4 44r 6 1 11r 5 28r 6 1r 2 10r 6 143r 2 9r 6 4 44r 6 1
12r 5 29r 6 1r 2 11r 6 139r 2 10r 6 4 44r 6 1 13r 6 5 29r 6
1r 2 11r 6 137r 2 10r 6 4 43r 6 1r 1 15r 6 5 29r 6 1r 2 11r 6

135r 2 10r 6 4 43r 6 1 18r 6 5 29r 6 1r 2 11r 6 133r 2 10r 6
4 42r 6 1r 1 20r 6 1r 5 28r 6 1r 2 11r 6 131r 2 10r 6 4 42r 6
1r 1 22r 6 2r 5 27r 6 1r 2 11r 6 129r 2 10r 6 4 42r 6 1 25r 6
2r 5 27r 6 1r 2 11r 6 127r 2 10r 6 4 42r 6 1 28r 6 1r 5 27r 6
2 12r 6 125r 2 11r 4 42r 6 1 30r 6 1r 5 26r 6 1r 2 12r 6 123r 2
11r 6 4 41r 6 1 32r 6 1r 5 26r 6 1r 2 12r 6 122r 2 11r 4 41r 6
1 34r 6 1r 5 26r 6 2 13r 6 120r 2 11r 6 4 40r 6 1 36r 6 1r 5
26r 6 2 13r 6 118r 2 12r 4 40r 6 1r 1 37r 6 1r 5 26r 6 2 3 2
11r 6 116r 2 12r 6 4 39r 6 1r 1 38r 6 1r 5 26r 6 2 3 1r 2 11r 6
115r 2 12r 6 4 38r 6 1r 1 40r 6 1r 5 26r 6 2 3 1r 2 11r 6 113r 2
13r 4 38r 6 1r 1 42r 6 5 26r 6 2 3 1r 2 12r 6 111r 2 13r 6 4
37r 6 1r 1 43r 6 5 27r 6 3 2r 2 12r 6 110r 2 13r 4 37r 6 1 46r 6
5 26r 6 2 3 1r 2 12r 6 109r 2 13r 6 4 36r 6 1 47r 6 5 26r 6
2 3 1r 2 13r 6 108r 2 13r 6 4 36r 6 1 47r 6 5 27r 6 3 2r 2 13r 6
110r 2 9r 6 4 36r 6 1 48r 6 5 27r 6 2 3 1r 2 13r 6 107r 1 2r 6
5r 2 3r 6 4 35r 6 1r 1 48r 6 5 28r 2 3 1r 2 14r 6 105r 1 8r 6
3r 2 6 4 35r 6 1r 1 48r 6 5 28r 6 2 3 2 15r 6 104r 1 12r 6 1r 4
35r 6 1 49r 6 5 28r 6 2 3 2 15r 6 103r 1 14r 6 4 35r 6 1r 1
47r 6 5 30r 2 3 2 14r 6 104r 1 14r 6 4 36r 6 1r 1 46r 6 5 30r 6
2 10r 6 4r 1 1r 6 101r 1 15r 6 4 38r 6 1 45r 6 5 30r 6 2 5r 6
4r 1 6r 6 101r 1 15r 4 40r 6 1 44r 5 32r 2 2r 6 2r 1 12r 6 99r 1
16r 4 41r 1 43r 6 5 32r 6 3r 1 14r 6 99r 1 16r 4 41r 6 1 42r 6
5 33r 6 1 17r 6 97r 1 17r 4 42r 6 1 41r 6 5 33r 6 1 17r 6 97r 1
17r 4 42r 6 1 40r 6 5 34r 6 1 17r 6 97r 1 16r 6 4 43r 6 1 39r 6
5 34r 6 1 18r 6 95r 1 14r 3 1 1r 6 4 45r 6 1 37r 6 5 34r 6 1
18r 6 95r 1 14r 3 1r 1 6 4 47r 6 2r 1 33r 6 5 34r 6 1 18r 6
94r 1 15r 3 1r 1 6 4 47r 6 6r 1 29r 5 35r 6 1 18r 6 94r 1 15r 3
1r 1 1r 4 48r 6 1r 1 6 4r 1 27r 5 35r 6 1 19r 6 92r 1 16r 3
1r 1 1r 4 49r 6 1 4r 6 4r 1 22r 6 5 35r 6 1 19r 6 92r 1 16r 3
2r 1 4 50r 6 1 6r 6 4r 1 19r 6 5 35r 6 1 19r 6 91r 1 17r 3 2r 1
4 50r 6 1 9r 6 7r 1 12r 6 5 36r 6 1 19r 6 91r 1 17r 3 2r 1 4
50r 6 1 14r 6 4r 1 10r 5 37r 6 1 20r 6 90r 1 17r 3 2r 1 4 50r 6
1 19r 6 2r 1 6r 5 38r 6 1 20r 6 89r 1 19r 3 1r 1 4 50r 6 1 25r 6
1r 1 5 39r 6 1 20r 6 89r 1 19r 3 1 1r 4 50r 6 1 25r 5 41r 6
1 21r 6 88r 1 20r 3 1 1r 4 49r 6 1r 1 24r 5 42r 6 1 21r 6 88r 1
20r 3 1 1r 4 49r 6 1 24r 5 43r 6 1 21r 6 88r 1 23r 4 49r 6 1
22r 5 44r 6 1r 1 22r 6 86r 1 24r 4 49r 6 1 20r 5 46r 6 1 23r 6
86r 1 24r 4 48r 6 1 20r 5 47r 6 1 23r 6 86r 1 24r 4 48r 6 1
18r 5 49r 6 1 23r 6 85r 1 25r 4 48r 6 1 17r 5 50r 6 1 23r 6
85r 1 25r 6 4 46r 6 1r 1 16r 5 51r 6 1 1r 3 1 20r 6 85r 1 25r 6
4 46r 6 1 16r 5 52r 6 1 3 1r 1 20r 6 85r 1 26r 4 46r 6 11r 1
4r 6 5 51r 6 1 3 2r 1 20r 6 84r 1 27r 4 45r 6 2r 1 4r 6 1r 1
2r 6 1r 1 2r 5 52r 6 1 3 2r 1 21r 6 83r 1 27r 6 4 44r 6 1r 1
12r 6 1r 5 53r 6 3 3r 1 21r 6 82r 1 28r 6 4 44r 6 1r 1 13r 6
5 52r 6 1 3 2r 1 22r 6 82r 1 28r 6 4 44r 6 1 15r 5 52r 6 1 3
2r 1 22r 6 82r 1 29r 4 43r 6 1r 1 15r 6 5 51r 6 1 3 2r 1 22r 6
81r 1 30r 4 43r 6 1 16r 6 5 51r 6 1 3 1r 1 23r 6 81r 1 30r 6
4 41r 6 1 18r 5 50r 6 1 1r 3 1r 1 24r 6 80r 1 30r 6 4 41r 6
1 18r 5 50r 6 1 1r 3 1 25r 6 79r 1 32r 4 41r 6 1 18r 5 50r 6
1 28r 6 79r 1 32r 6 4 39r 6 1 8r 3 2r 1 7r 5 49r 6 1 29r 6 79r 1
32r 6 4 39r 6 1 6r 3 6r 1 5r 6 5 48r 6 1 29r 6 78r 1 34r 4 39r 6
1 5r 3 8r 1 4r 6 5 47r 6 1r 1 30r 6 77r 1 34r 6 4 38r 6 1 4r 3
10r 1 3r 6 5 47r 6 1 31r 6 77r 1 35r 4 38r 6 1 4r 3 10r 1 3r 6
5 46r 6 1r 1 31r 6 77r 1 35r 6 4 36r 6 1 4r 3 12r 1 2r 6 5 46r 6
1 32r 6 76r 1 37r 4 36r 6 1 3r 3 14r 1 2r 5 45r 6 1 33r 6 76r 1
33r 3 2r 1 6 4 35r 6 1 2r 3 15r 1 2r 5 44r 6 1r 1 34r 6 75r 1
33r 3 3r 1 4 34r 6 1r 1 2r 3 15r 1 2r 6 5 43r 6 1 35r 6 75r 1
34r 3 2r 1 6 4 33r 6 1 2r 3 17r 1 1r 6 5 42r 6 1 36r 6 75r 1
35r 3 2r 1 4 33r 6 1 2r 3 17r 1 1r 6 5 41r 6 1r 1 36r 6 75r 1
35r 3 2r 1 6 4 31r 6 1r 1 1r 3 18r 1 2r 5 41r 6 1 37r 6 75r 1
36r 3 1r 1 1r 4 31r 6 1 2r 3 18r 1 2r 5 40r 6 1 38r 6 75r 1
40r 6 4 29r 6 1r 1 3r 3 17r 1 2r 5 39r 6 1r 1 38r 6 75r 1 41r 6
4 28r 6 1 4r 3 18r 1 1r 6 5 37r 6 1r 1 39r 6 75r 1 41r 6 4 27r 6
1r 1 3r 3 20r 1 6 5 37r 6 1 40r 6 76r 1 41r 6 4 26r 6 1 3r 3
21r 1 1r 6 5 35r 6 1r 1 40r 6 76r 1 42r 6 4 24r 6 1 3r 3 22r 1
1r 6 1r 5 33r 6 1r 1 1r 3 1r 1 36r 6 77r 1 43r 6 4 22r 6 1r 1
4r 3 21r 1 2r 6 5 31r 6 2r 1 1r 3 2r 1 36r 6 77r 1 44r 6 1r 4
18r 6 2r 1 5r 3 23r 1 1r 6 5 29r 6 2r 1 3 3r 1 37r 6 78r 1 44r 6
2r 4 14r 6 4r 1 4r 3 24r 1 1r 6 5 28r 6 1r 1 1r 3 4r 1 37r 6
78r 1 46r 6 3r 4 8r 6 5r 1 5r 3 25r 1 2r 6 5 26r 6 1r 1 1r 3
4r 1 37r 6 79r 1 49r 6 3r 4 1r 6 8r 1 6r 3 25r 1 3r 6 5 24r 6
1r 1 1r 3 4r 1 38r 6 80r 1 51r 6 9r 1 7r 3 26r 1 4r 6 5 21r 6
2r 1 2r 3 3r 1 38r 6 81r 1 43r 3 4r 1 20r 3 26r 1 5r 6 1r 5
17r 6 2r 1 4r 3 2r 1 38r 6 83r 1 42r 3 5r 1 19r 3 25r 1 7r 6
2r 5 13r 6 3r 1 4r 3 2r 1 38r 6 84r 1 43r 3 5r 1 18r 3 26r 1
8r 6 3r 5 6r 6 5r 1 5r 3 2r 1 39r 6 85r 1 45r 3 2r 1 19r 3 26r 1
9r 6 11r 1 7r 3 2r 1 39r 6 87r 1 69r 3 24r 1 27r 3 2r 1 40r 6
89r 1 70r 3 21r 1 27r 3 1r 1 41r 6 91r 1 78r 3 10r 1 71r 6 95r 1
83r 3 1 72r 6 99r 1 153r 6 104r 1 148r 6 109r 1 142r 6 115r 1
136r 6 120r 1 132r 6 126r 1 58r 6 7r 1 57r 6 133r 1 51r 6 14r 1
50r 6 142r 1 40r 6 23r 1 40r 6 155r 1 26r 6 35r 1 32r 6 231r 1
14r 6 34503r 2 13r 6 235r 2 28r 6 221r 2 44r 6 207r 2 60r 6
192r 2 28r 3 12r 2 25r 6 184r 2 32r 3 16r 2 24r 6 178r 2 34r 3
16r 2 27r 6 173r 2 31r 6 2 15r 3 3r 2 30r 6 170r 2 18r 6 11r 4
2r 6 12r 2 39r 6 166r 2 14r 6 4r 4 23r 6 11r 2 34r 6 162r 2
14r 6 1r 4 31r 6 1r 1 7r 6 5r 2 18r 3 1r 2 7r 6 160r 2 13r 6
1r 4 34r 6 1 8r 6 3r 5 6 15r 2 14r 6 157r 2 11r 6 2r 4 36r 6
1r 1 7r 6 1r 5 18r 6 2r 2 12r 6 154r 2 11r 6 1r 4 39r 6 1r 1
7r 6 5 22r 6 1r 2 12r 6 151r 2 10r 6 4 42r 6 1 8r 6 5 24r 6
1r 2 11r 6 149r 2 9r 6 4 43r 6 1r 1 7r 6 1r 5 25r 6 1r 2 12r 6
146r 2 9r 6 4 43r 6 1r 1 8r 6 1r 5 26r 6 1r 2 12r 6 143r 2 10r 6
4 43r 6 1r 1 10r 6 5 28r 6 1r 2 11r 6 141r 2 10r 6 4 43r 6 1
12r 6 5 29r 6 1r 2 11r 6 139r 2 10r 6 4 43r 6 1 14r 5 30r 6
1r 2 11r 6 137r 2 10r 6 4 43r 1 17r 5 30r 6 1r 2 11r 6 135r 2
10r 6 4 42r 6 1 20r 5 29r 6 1r 2 11r 6 133r 2 10r 4 43r 6 1
21r 6 1r 5 28r 6 1r 2 12r 6 130r 2 10r 4 42r 6 1r 1 23r 6 1r 5
28r 6 1r 2 12r 6 128r 2 10r 4 42r 6 1r 1 25r 6 1r 5 28r 6 1r 2
12r 6 126r 2 10r 6 4 41r 6 1r 1 27r 6 1r 5 27r 6 1r 2 13r 6
124r 2 11r 4 42r 6 1 29r 6 5 28r 6 1r 2 13r 6 122r 2 11r 6 4
40r 6 1r 1 31r 6 1r 5 27r 6 1r 2 13r 6 120r 2 12r 4 41r 6 1
33r 6 1r 5 27r 6 1r 2 13r 6 118r 2 12r 6 4 40r 6 1 35r 6 1r 5
27r 6 2 14r 6 116r 2 13r 4 40r 6 1 36r 6 2r 5 26r 6 1r 2 14r 6
115r 2 13r 4 39r 6 1 38r 6 1r 5 27r 6 2 15r 6 113r 2 13r 6 4
38r 6 1r 1 38r 6 1r 5 28r 6 2 15r 6 111r 2 14r 4 38r 6 1r 1
40r 6 1r 5 27r 6 2 1r 3 2 12r 6 111r 2 13r 6 4 37r 6 1r 1 41r 6
1r 5 28r 6 2 3 2 13r 6 109r 2 14r 4 37r 6 1r 1 43r 6 5 28r 6
2 3 1r 2 13r 6 108r 2 13r 6 4 36r 6 1r 1 44r 6 1r 5 28r 2 3
1r 2 14r 6 110r 2 10r 6 4 35r 6 1r 1 45r 6 1r 5 28r 6 3 2r 2
13r 6 107r 1 2r 6 3r 2 6r 6 4 35r 6 1 46r 6 5 29r 6 2 3 1r 2
14r 6 105r 1 6r 6 3r 2 2r 6 4 35r 6 1r 1 46r 6 5 30r 2 3 1r 2
15r 6 104r 1 10r 6 3r 4 35r 6 1r 1 46r 6 5 30r 6 3 1r 2 15r 6
103r 1 13r 6 1r 4 36r 6 1 46r 6 5 30r 6 2 3 2 14r 6 104r 1 15r 4
36r 6 1r 1 45r 6 5 30r 6 2 3 1r 2 8r 6 4r 1 1r 6 101r 1 15r 6
4 37r 6 1r 1 44r 6 5 31r 2 3 1r 2 5r 6 1r 1 8r 6 100r 1 15r 6
4 39r 6 1 43r 5 32r 6 2 3r 6 1r 1 12r 6 99r 1 16r 6 4 40r 1
43r 5 33r 2 6 2r 1 14r 6 99r 1 16r 4 42r 1 41r 6 5 33r 6 1 18r 6
97r 1 17r 4 42r 6 1 40r 6 5 33r 6 1 18r 6 97r 1 17r 4 43r 1
40r 5 35r 1 18r 6 96r 1 18r 4 43r 6 1 38r 6 5 35r 6 1 18r 6
95r 1 18r 4 46r 6 1r 1 34r 6 5 35r 6 1 18r 6 94r 1 18r 6 4 47r 6
3r 1 31r 6 5 35r 6 1 18r 6 94r 1 19r 4 48r 6 1r 1 6 3r 1 27r 6
5 35r 6 1 19r 6 92r 1 20r 4 48r 6 1r 1 1r 6 4r 1 25r 6 5 35r 6
1 19r 6 92r 1 20r 4 49r 6 1r 1 4r 6 4r 1 21r 5 36r 6 1 19r 6
92r 1 17r 3 1 1r 4 49r 6 1r 1 7r 6 5r 1 16r 6 5 36r 6 1 19r 6
91r 1 18r 3 1r 1 4 50r 6 1 11r 6 5r 1 12r 5 37r 1 21r 6 90r 1
18r 3 1r 1 6 4 49r 6 1 14r 6 5r 1 8r 6 5 36r 6 1 21r 6 89r 1
19r 3 1r 1 4 50r 6 1 20r 6 3r 1 4r 5 37r 6 1 21r 6 89r 1 19r 3
1r 1 4 50r 6 1 24r 6 2r 5 39r 6 1 21r 6 89r 1 19r 3 1r 1 4 50r 6
1 24r 6 5 41r 6 1 21r 6 88r 1 20r 3 1r 1 4 49r 6 1r 1 24r 5
42r 6 1 21r 6 88r 1 20r 3 1r 1 4 49r 6 1 23r 5 43r 6 1r 1 22r 6
87r 1 20r 3 1r 1 4 49r 6 1 21r 5 45r 6 1 23r 6 86r 1 22r 3 1
4 48r 6 1r 1 20r 5 46r 6 1 23r 6 86r 1 22r 3 1 4 48r 6 1 19r 5
48r 6 1 23r 6 86r 1 22r 3 1 6 4 47r 6 1 18r 5 49r 6 1 23r 6
85r 1 25r 6 4 46r 6 1r 1 17r 5 50r 6 1 23r 6 85r 1 25r 6 4 46r 6
1 17r 5 50r 6 1r 1 23r 6 85r 1 26r 4 46r 6 1 1r 6 1r 1 12r 5
51r 6 1 24r 6 84r 1 27r 4 46r 6 11r 1 4r 6 5 51r 6 1 1r 3 1
22r 6 83r 1 27r 6 4 45r 6 1r 1 9r 6 1r 1 2r 5 52r 6 1 3 2r 1
21r 6 83r 1 27r 6 4 45r 6 1 12r 6 1r 5 52r 6 1r 3 2r 1 22r 6
82r 1 29r 4 45r 6 1 13r 6 5 52r 6 1 3 2r 1 22r 6 82r 1 29r 4
44r 6 1 15r 5 52r 6 1 3 2r 1 22r 6 82r 1 29r 4 44r 6 1 15r 6
5 51r 6 3 3r 1 22r 6 81r 1 30r 6 4 42r 6 1 16r 6 5 50r 6 1 3
2r 1 24r 6 80r 1 30r 6 4 41r 6 1r 1 17r 5 50r 6 1 3 2r 1 24r 6
80r 1 31r 4 41r 6 1 18r 5 50r 6 1 3 2r 1 24r 6 79r 1 32r 6 4
40r 6 1 18r 5 49r 6 1r 1 3 1r 1 25r 6 79r 1 32r 6 4 40r 6 1
6r 3 4r 1 6r 5 49r 6 1 1r 3 1 26r 6 79r 1 33r 4 39r 6 1 6r 3
7r 1 4r 6 5 47r 6 1r 1 30r 6 77r 1 34r 6 4 38r 6 1 5r 3 8r 1
4r 6 5 47r 6 1 31r 6 77r 1 35r 4 38r 6 1 4r 3 10r 1 3r 6 5 46r 6
1r 1 31r 6 77r 1 35r 6 4 37r 6 1 3r 3 11r 1 3r 6 5 46r 6 1 32r 6
76r 1 36r 6 4 36r 6 1r 1 3r 3 12r 1 3r 5 45r 6 1r 1 32r 6 76r 1
37r 6 4 35r 6 1 3r 3 13r 1 3r 5 44r 6 1r 1 34r 6 75r 1 37r 6
4 35r 6 1 2r 3 15r 1 2r 5 44r 6 1 35r 6 75r 1 34r 3 1 2r 6 4
33r 6 1 3r 3 15r 1 2r 6 5 42r 6 1r 1 35r 6 75r 1 34r 3 2r 1
1r 6 4 32r 6 1 3r 3 16r 1 1r 6 5 42r 6 1 36r 6 75r 1 35r 3 2r 1
6 4 32r 6 1 3r 3 16r 1 1r 6 5 41r 6 1r 1 36r 6 75r 1 35r 3 3r 1
4 31r 6 1r 1 3 1r 1 3 16r 1 2r 5 40r 6 1r 1 37r 6 75r 1 36r 3
2r 1 6 4 30r 6 1 1r 3 19r 1 1r 6 5 40r 6 1 38r 6 75r 1 37r 3
1r 1 1r 6 4 28r 6 1r 1 1r 3 19r 1 2r 6 5 38r 6 1 39r 6 75r 1
41r 6 4 28r 6 1 4r 3 18r 1 1r 6 5 37r 6 1r 1 39r 6 75r 1 42r 6
4 26r 6 1 5r 3 19r 1 6 5 37r 6 1 40r 6 75r 1 43r 6 4 24r 6 1r 1
4r 3 20r 1 1r 6 5 35r 6 1 41r 6 76r 1 42r 6 1r 4 23r 6 1 4r 3
22r 1 6 5 34r 6 1 42r 6 76r 1 43r 6 1r 4 21r 6 1r 1 3r 3 23r 1
1r 6 5 31r 6 1r 1 42r 6 77r 1 45r 6 1r 4 16r 6 3r 1 4r 3 23r 1
2r 6 5 29r 6 1r 1 2r 3 2r 1 37r 6 77r 1 46r 6 3r 4 10r 6 5r 1
4r 3 25r 1 1r 6 5 28r 6 1r 1 1r 3 3r 1 38r 6 78r 1 48r 6 16r 1
5r 3 25r 1 2r 6 5 26r 6 1r 1 1r 3 4r 1 37r 6 79r 1 50r 6 12r 1
6r 3 26r 1 3r 6 1r 5 22r 6 2r 1 3 5r 1 38r 6 79r 1 55r 6 4r 1
9r 3 26r 1 4r 6 1r 5 19r 6 3r 1 3 5r 1 38r 6 81r 1 45r 3 4r 1
18r 3 26r 1 5r 6 1r 5 17r 6 2r 1 1r 3 5r 1 39r 6 81r 1 44r 3
6r 1 17r 3 27r 1 5r 6 2r 5 12r 6 3r 1 2r 3 5r 1 39r 6 83r 1
44r 3 6r 1 17r 3 26r 1 7r 6 5r 5 3r 6 5r 1 4r 3 4r 1 39r 6 85r 1
47r 3 1r 1 19r 3 25r 1 10r 6 9r 1 7r 3 3r 1 39r 6 86r 1 71r 3
23r 1 26r 3 3r 1 40r 6 89r 1 71r 3 20r 1 25r 3 4r 1 40r 6 91r 1
79r 3 9r 1 26r 3 3r 1 40r 6 95r 1 157r 6 99r 1 153r 6 104r 1
148r 6 108r 1 144r 6 113r 1 138r 6 119r 1 132r 6 126r 1 57r 6
8r 1 57r 6 133r 1 50r 6 15r 1 50r 6 142r 1 40r 6 23r 1 41r 6
154r 1 26r 6 35r 1 33r 6 230r 1 14r 6 34756r 2 20r 6 229r 2
35r 6 215r 2 52r 6 199r 2 27r 3 4r 2 30r 6 189r 2 30r 3 16r 2
22r 6 182r 2 33r 3 15r 2 25r 6 177r 2 34r 3 4r 2 2r 3 7r 2 28r 6
173r 2 28r 6 3r 2 16r 3 2r 2 31r 6 168r 2 14r 6 9r 4 1r 6 1r 4
9r 6 4 2r 6 8r 2 35r 6 165r 2 14r 6 1r 4 29r 6 3r 1 4r 6 2r 2
22r 3 1r 2 7r 6 162r 2 13r 6 1r 4 33r 6 1r 1 6r 6 10r 2 13r 3
2r 2 7r 6 158r 2 13r 6 1r 4 35r 6 1r 1 6r 6 2r 5 2r 6 1r 5 6
13r 2 3r 3 1r 2 7r 6 156r 2 11r 6 4 39r 6 1r 1 6r 6 1r 5 20r 6
2r 2 1r 3 1r 2 8r 6 153r 2 9r 6 4 42r 6 1 7r 6 1r 5 22r 6 2r 2
11r 6 151r 2 9r 4 44r 1 8r 6 1r 5 24r 6 1r 2 12r 6 147r 2 9r 6
4 44r 1 9r 6 1r 5 25r 6 1r 2 12r 6 145r 2 10r 4 44r 6 1 9r 6
1r 5 26r 6 1r 2 12r 6 143r 2 10r 4 44r 6 1 10r 6 1r 5 28r 6
2 12r 6 141r 2 10r 4 44r 1 13r 6 5 29r 6 1r 2 11r 6 138r 2 11r 6
4 42r 6 1 15r 5 30r 6 1r 2 12r 6 135r 2 11r 6 4 42r 1 17r 5
31r 6 1r 2 12r 6 133r 2 11r 4 42r 6 1 19r 6 1r 5 29r 6 1r 2
12r 6 131r 2 11r 4 42r 6 1 22r 6 5 29r 6 1r 2 12r 6 129r 2 11r 4
42r 6 1 24r 6 5 29r 6 1r 2 12r 6 127r 2 11r 4 42r 6 1 26r 6
5 29r 6 1r 2 12r 6 125r 2 11r 6 4 41r 6 1 28r 5 29r 6 1r 2 13r 6
123r 2 12r 4 41r 6 1 30r 5 29r 6 1r 2 13r 6 121r 2 12r 6 4 40r 6
1 32r 6 5 28r 6 1r 2 13r 6 119r 2 13r 4 41r 1 34r 6 5 28r 6
2 14r 6 118r 2 12r 6 4 40r 6 1 34r 6 1r 5 28r 6 2 14r 6 116r 2
13r 4 40r 6 1 35r 6 1r 5 28r 6 1r 2 14r 6 114r 2 13r 6 4 39r 6
1 37r 6 1r 5 28r 6 2 15r 6 113r 2 13r 4 39r 6 1 38r 6 1r 5 28r 6
1r 2 15r 6 111r 2 13r 6 4 38r 6 1 39r 6 1r 5 29r 6 2 16r 6 109r 2
14r 4 38r 6 1 41r 6 1r 5 29r 6 2 16r 6 108r 2 14r 4 37r 6 1
42r 6 1r 5 29r 6 2 3 2 15r 6 110r 2 10r 6 4 36r 6 1 43r 6 1r 5
29r 6 2 3 1r 2 14r 6 107r 1 1r 6 4r 2 6r 6 4 35r 6 1r 1 44r 6
5 30r 6 3 1r 2 15r 6 105r 1 7r 6 3r 2 2r 6 4 35r 6 1 44r 6 5
31r 6 2 3 1r 2 15r 6 104r 1 10r 6 3r 4 36r 6 1 44r 6 5 31r 6
2 3 1r 2 15r 6 103r 1 14r 6 4 36r 6 1 44r 6 5 32r 2 3 1r 2 14r 6
104r 1 15r 4 36r 6 1 45r 6 5 31r 6 3 1r 2 9r 6 4r 1 1r 6 101r 1
16r 4 37r 6 1 44r 6 5 31r 6 2 3 2 7r 6 1 8r 6 100r 1 16r 4 39r 1
43r 6 5 31r 6 2 3 2 4r 6 1r 1 10r 6 99r 1 16r 6 4 40r 6 1 41r 5
33r 6 2 3r 6 1 14r 6 98r 1 16r 6 4 41r 1 40r 6 5 33r 6 2 1 18r 6
97r 1 17r 6 4 41r 6 1 39r 6 5 34r 6 1 18r 6 97r 1 17r 6 4 42r 6
1 38r 5 35r 6 1 19r 6 95r 1 18r 6 4 43r 6 1 37r 5 35r 6 1 19r 6
95r 1 18r 6 4 46r 6 1r 1 32r 6 5 35r 6 1 19r 6 94r 1 19r 4 49r 6
2r 1 29r 6 5 35r 6 1 20r 6 93r 1 19r 4 49r 6 1 1r 6 3r 1 25r 6
5 35r 6 1 20r 6 92r 1 20r 6 4 49r 1 2r 6 4r 1 23r 6 5 35r 6
1 20r 6 92r 1 20r 6 4 49r 6 1 5r 6 4r 1 19r 6 5 35r 6 1 20r 6
91r 1 21r 6 4 50r 1 8r 6 6r 1 14r 5 36r 6 1 20r 6 91r 1 21r 6
4 49r 6 1 12r 6 4r 1 11r 6 5 36r 6 1 21r 6 90r 1 21r 6 4 49r 6

1 16r 6 4r 1 7r 5 37r 6 1 21r 6 89r 1 22r 6 4 49r 6 1 20r 6
4r 1 2r 5 38r 6 1 21r 6 89r 1 19r 3 1r 1 6 4 48r 6 1r 1 24r 6
2r 5 39r 6 1 21r 6 88r 1 20r 3 1r 1 6 4 49r 6 1 24r 6 5 40r 6
1r 1 21r 6 88r 1 20r 3 1r 1 6 4 48r 6 1r 1 23r 6 5 41r 6 1 23r 6
87r 1 20r 3 1r 1 6 4 48r 6 1 23r 5 43r 6 1 23r 6 86r 1 21r 3
2r 6 4 47r 6 1r 1 21r 5 45r 6 1 23r 6 86r 1 22r 3 1r 6 4 47r 6
1 20r 6 5 45r 6 1r 1 23r 6 86r 1 22r 3 1r 6 4 47r 6 1 19r 5
47r 6 1 24r 6 85r 1 23r 3 1r 1 4 46r 6 1r 1 18r 5 48r 6 1 24r 6
85r 1 23r 3 1r 1 4 46r 6 1 17r 6 5 49r 6 1 24r 6 85r 1 24r 3
1 4 46r 6 1 16r 6 5 50r 6 1 24r 6 84r 1 25r 3 1 4 45r 6 1r 1
1r 6 1r 1 12r 5 51r 6 1 25r 6 83r 1 25r 3 1 6 4 44r 6 3r 1 6
8r 1 3r 6 5 51r 6 1 25r 6 83r 1 27r 6 4 45r 6 1r 1 10r 6 1r 1
1r 5 51r 6 1r 1 25r 6 82r 1 29r 4 45r 6 1 12r 6 2r 5 51r 6 1
2r 3 1 22r 6 82r 1 29r 4 45r 6 1 13r 6 1r 5 51r 6 1 3 2r 1 22r 6
82r 1 29r 4 44r 6 1 15r 6 5 51r 6 1 3 1r 1 23r 6 81r 1 30r 6
4 42r 6 1r 1 15r 6 5 50r 6 1 3 2r 1 24r 6 80r 1 30r 6 4 42r 6
1 16r 6 5 50r 6 1 3 2r 1 24r 6 80r 1 31r 4 41r 6 1 18r 5 49r 6
1r 3 3r 1 24r 6 79r 1 32r 6 4 40r 6 1 18r 5 49r 6 1 3 2r 1 25r 6
79r 1 33r 4 40r 6 1 7r 3 1 9r 5 49r 6 1 3 2r 1 25r 6 79r 1 33r 4
39r 6 1 6r 3 6r 1 5r 5 48r 6 1r 1 3 1r 1 27r 6 77r 1 34r 6 4
38r 6 1 5r 3 8r 1 4r 6 5 47r 6 1 1r 3 1r 1 27r 6 77r 1 34r 6
4 38r 6 1 4r 3 9r 1 4r 6 5 46r 6 1r 1 1r 3 1 28r 6 77r 1 35r 4
38r 6 1 4r 3 10r 1 3r 6 5 46r 6 1 32r 6 77r 1 35r 6 4 37r 6
1 3r 3 11r 1 3r 6 5 45r 6 1 33r 6 76r 1 37r 6 4 35r 6 1r 1 2r 3
13r 1 2r 6 5 45r 6 1 34r 6 75r 1 37r 6 4 35r 6 1 3r 3 13r 1
3r 5 44r 6 1 35r 6 75r 1 38r 6 4 34r 6 1 2r 3 15r 1 2r 6 5 42r 6
1r 1 35r 6 75r 1 38r 6 4 34r 1 3r 3 15r 1 2r 6 5 42r 6 1 36r 6
75r 1 35r 3 1 2r 6 4 32r 6 1 3 1 1r 3 16r 1 1r 6 5 41r 6 1r 1
36r 6 75r 1 35r 3 3r 1 6 4 31r 6 1 3r 3 16r 1 1r 6 5 41r 6 1
37r 6 75r 1 35r 3 3r 1 6 4 30r 6 1 1r 3 1 1r 3 16r 1 1r 6 5
40r 6 1 39r 6 74r 1 36r 3 3r 1 6 4 29r 6 1 1r 3 1r 1 3 16r 1
6 1r 5 39r 6 1r 1 39r 6 74r 1 37r 3 2r 1 6 4 28r 6 1 1r 3 20r 1
2r 6 5 38r 6 1 40r 6 74r 1 38r 3 1r 1 1r 6 4 26r 6 1r 1 1r 3
20r 1 2r 6 5 37r 6 1 40r 6 75r 1 43r 6 4 25r 6 1 6r 3 18r 1
6 5 36r 6 1r 1 40r 6 75r 1 43r 6 1r 4 23r 6 1r 1 5r 3 20r 1
6 5 34r 6 1r 1 41r 6 75r 1 44r 6 1r 4 21r 6 1r 1 4r 3 22r 1
6 5 33r 6 1r 1 42r 6 76r 1 44r 6 1r 4 19r 6 1r 1 4r 3 23r 1
1r 6 5 30r 6 2r 1 43r 6 76r 1 46r 6 2r 4 14r 6 3r 1 3r 3 24r 1
2r 6 5 28r 6 2r 1 43r 6 77r 1 48r 6 2r 4 9r 6 5r 1 4r 3 23r 1
3r 6 1r 5 26r 6 2r 1 44r 6 77r 1 50r 6 14r 1 5r 3 25r 1 3r 6
1r 5 24r 6 2r 1 2r 3 1r 1 40r 6 78r 1 52r 6 9r 1 7r 3 26r 1
3r 6 1r 5 21r 6 3r 1 1r 3 3r 1 39r 6 79r 1 70r 3 26r 1 4r 6
1r 5 19r 6 2r 1 1r 3 4r 1 40r 6 80r 1 47r 3 4r 1 16r 3 26r 1
5r 6 1r 5 16r 6 2r 1 2r 3 4r 1 40r 6 81r 1 46r 3 6r 1 15r 3
27r 1 6r 6 2r 5 10r 6 4r 1 1r 3 5r 1 40r 6 83r 1 45r 3 6r 1
16r 3 26r 1 8r 6 13r 1 2r 3 6r 1 40r 6 84r 1 50r 3 1 18r 3 25r 1
11r 6 6r 1 4r 3 7r 1 40r 6 86r 1 72r 3 22r 1 23r 3 6r 1 40r 6
88r 1 73r 3 19r 1 21r 3 7r 1 41r 6 91r 1 79r 3 9r 1 22r 3 7r 1
41r 6 94r 1 158r 6 98r 1 154r 6 102r 1 149r 6 108r 1 144r 6
113r 1 138r 6 119r 1 132r 6 125r 1 58r 6 7r 1 59r 6 132r 1 50r 6
14r 1 51r 6 142r 1 39r 6 23r 1 42r 6 155r 1 25r 6 34r 1 34r 6
229r 1 16r 6 34760r 2 11r 6 235r 2 27r 6 223r 2 43r 6 208r 2
25r 3 1r 2 29r 6 194r 2 29r 3 10r 2 25r 6 186r 2 31r 3 15r 2
24r 6 180r 2 33r 3 15r 2 27r 6 175r 2 47r 3 3r 2 29r 6 171r 2
14r 6 15r 4 5r 6 11r 2 36r 6 167r 2 14r 6 4 27r 6 6r 1 2r 6
2 6 1r 2 31r 6 164r 2 13r 6 1r 4 30r 6 3r 1 5r 6 4r 2 19r 3
2r 2 7r 6 160r 2 13r 6 1r 4 34r 6 1r 1 4r 6 4r 5 1r 6 5r 2 5r 6
1r 2 6r 3 1r 2 7r 6 158r 2 11r 6 1r 4 37r 6 1r 1 4r 6 3r 5 8r 6
5r 5 1r 6 3r 2 3r 3 1r 2 8r 6 154r 2 10r 6 2r 4 40r 6 1 4r 6
3r 5 20r 6 2r 2 1r 3 1r 2 8r 6 152r 2 9r 6 1r 4 43r 1 5r 6 3r 5
23r 6 1r 2 1r 3 2 9r 6 149r 2 9r 6 4 44r 1 6r 6 3r 5 24r 6 1r 2
12r 6 147r 2 9r 6 4 44r 6 1 6r 6 3r 5 25r 6 1r 2 12r 6 144r 2
10r 6 4 44r 6 1 8r 6 2r 5 26r 6 1r 2 13r 6 141r 2 10r 6 4 43r 6
1 10r 6 2r 5 28r 6 2 13r 6 139r 2 11r 4 43r 6 1 12r 6 1r 5 29r 6
2 13r 6 137r 2 11r 4 43r 1 14r 6 1r 5 29r 6 1r 2 13r 6 134r 2
12r 4 42r 6 1 16r 6 5 30r 6 2r 2 12r 6 132r 2 11r 6 4 42r 6
1 18r 6 5 31r 6 1r 2 12r 6 130r 2 11r 6 4 42r 6 1 20r 6 1r 5
30r 6 1r 2 12r 6 128r 2 11r 6 4 42r 6 1 22r 6 1r 5 30r 6 1r 2
12r 6 126r 2 12r 4 42r 6 1 23r 6 1r 5 31r 6 1r 2 13r 6 123r 2
12r 6 4 41r 6 1 25r 6 1r 5 30r 6 1r 2 14r 6 121r 2 13r 4 41r 6
1 28r 6 5 30r 6 1r 2 14r 6 119r 2 13r 6 4 40r 6 1 30r 6 5 30r 6
1r 2 14r 6 118r 2 13r 4 40r 6 1 32r 6 1r 5 29r 6 2 15r 6 116r 2
13r 6 4 39r 6 1 34r 6 1r 5 28r 6 1r 2 15r 6 114r 2 14r 4 39r 6
1 35r 6 1r 5 29r 6 1r 2 15r 6 113r 2 13r 6 4 38r 6 1 37r 6 5
29r 6 1r 2 16r 6 111r 2 14r 6 4 38r 1 38r 6 1r 5 29r 6 1r 2
16r 6 109r 2 14r 6 4 38r 1 39r 6 1r 5 30r 6 2 17r 6 108r 2 14r 6
4 36r 6 1 41r 6 5 30r 6 2 17r 6 111r 2 11r 6 4 35r 6 1 42r 6
5 31r 6 2 17r 6 107r 1 2r 6 2r 2 7r 6 1r 4 35r 1 43r 6 5 31r 6
2 18r 6 105r 1 6r 6 3r 2 3r 6 1r 4 34r 6 1 42r 6 1r 5 32r 6
2 3 2 16r 6 104r 1 9r 6 5r 4 35r 1 44r 6 5 32r 6 2 3 2 16r 6
103r 1 14r 6 1r 4 35r 1 44r 6 5 32r 6 2 3 2 14r 6 105r 1 15r 6
4 35r 6 1 43r 6 5 32r 6 2 3 1r 2 9r 6 4r 1 1r 6 101r 1 16r 6
4 36r 1 44r 6 5 32r 2 3 1r 2 6r 6 2r 1 7r 6 99r 1 17r 6 4 37r 6
1 42r 6 5 32r 6 2 3 2 3r 6 1r 1 11r 6 99r 1 17r 4 40r 1 41r 6
5 32r 6 2 3 2 1r 6 1r 1 14r 6 97r 1 18r 4 40r 6 1 40r 5 34r 6
2 1r 1 17r 6 97r 1 18r 4 41r 6 1 38r 6 5 34r 6 1 19r 6 96r 1
18r 6 4 42r 6 1 37r 6 5 35r 1 20r 6 95r 1 19r 4 44r 6 1 5r 6
1 28r 6 5 34r 6 1 20r 6 94r 1 19r 6 4 46r 6 1r 1 1r 6 3r 1 26r 5
36r 1 20r 6 94r 1 19r 6 4 47r 6 1 6 4r 1 26r 5 36r 6 1 20r 6
92r 1 20r 6 4 47r 6 1 1r 6 4r 1 24r 6 5 36r 6 1 20r 6 92r 1
20r 6 4 49r 6 1 1r 6 6r 1 20r 6 5 36r 6 1 20r 6 92r 1 21r 4
49r 6 1 6r 6 5r 1 16r 6 5 36r 6 1 20r 6 91r 1 22r 4 49r 6 1r 1
9r 6 4r 1 13r 6 5 36r 6 1 21r 6 90r 1 22r 4 50r 6 1 11r 6 6r 1
9r 5 36r 6 1 22r 6 89r 1 23r 4 49r 6 1 17r 6 5r 1 4r 6 5 36r 6
1 22r 6 89r 1 23r 4 48r 6 1r 1 21r 6 4r 1 6 5 37r 6 1 22r 6
88r 1 24r 4 48r 6 1r 1 24r 6 2r 5 38r 6 1 22r 6 88r 1 24r 4
48r 6 1r 1 24r 6 5 40r 6 1 23r 6 87r 1 24r 4 48r 6 1 24r 6 5
41r 6 1 23r 6 86r 1 24r 6 4 48r 6 1 23r 5 42r 6 1r 1 23r 6 86r 1
22r 3 1 6 4 47r 6 1r 1 21r 5 44r 6 1 24r 6 86r 1 22r 3 1r 1
4 47r 6 1 20r 5 46r 6 1 24r 6 85r 1 23r 3 1r 1 4 46r 6 1r 1
19r 5 47r 6 1 24r 6 85r 1 23r 3 1r 1 4 46r 6 1 18r 6 5 48r 6
1 24r 6 85r 1 23r 3 1r 1 4 46r 6 1 17r 5 50r 6 1 25r 6 83r 1
25r 3 1 6 4 44r 6 1 17r 5 51r 6 1 25r 6 83r 1 25r 3 1r 1 4 45r 1
1r 6 4r 1 9r 6 5 51r 6 1 25r 6 83r 1 25r 3 1r 1 4 45r 6 2r 1
1r 6 3r 1 6 2r 1 3r 5 51r 6 1 26r 6 82r 1 26r 3 1r 1 4 45r 6
1 11r 6 1r 1 5 52r 6 1 26r 6 82r 1 27r 3 1 4 44r 6 1r 1 12r 6
1r 5 52r 6 1 26r 6 82r 1 27r 3 1 6 4 43r 6 1 14r 6 5 51r 6 1r 1
26r 6 81r 1 30r 6 4 43r 6 1 15r 5 51r 6 1 28r 6 80r 1 31r 4
42r 6 1r 1 15r 6 5 50r 6 1 1r 3 1r 1 24r 6 80r 1 31r 4 42r 6
1 16r 6 5 49r 6 1r 1 3 2r 1 24r 6 79r 1 32r 6 4 40r 6 1 17r 6
5 49r 6 1 3 2r 1 25r 6 79r 1 32r 6 4 40r 6 1 17r 6 5 49r 6 1
3 2r 1 25r 6 79r 1 33r 4 40r 6 1 5r 3 4r 1 7r 5 48r 6 1 3 3r 1
26r 6 77r 1 34r 6 4 38r 6 1 5r 3 7r 1 5r 5 48r 6 1 3 2r 1 27r 6
77r 1 35r 4 38r 6 1 5r 3 8r 1 4r 5 47r 6 1 1r 3 2r 1 27r 6 77r 1
35r 4 38r 6 1 4r 3 10r 1 3r 6 5 46r 6 1 3 2r 1 28r 6 77r 1 35r 6
4 37r 6 1 3r 3 11r 1 3r 6 5 45r 6 1 1r 3 2r 1 28r 6 76r 1 37r 4
37r 6 1 3r 3 12r 1 2r 6 5 45r 6 1 1r 3 1r 1 30r 6 75r 1 37r 6
4 35r 6 1r 1 2r 3 13r 1 2r 6 5 44r 6 1 35r 6 75r 1 38r 4 35r 6
1 2r 3 15r 1 2r 5 44r 6 1 35r 6 75r 1 38r 6 4 34r 6 1 2r 3 15r 1
2r 5 43r 6 1 36r 6 75r 1 39r 6 4 32r 6 1 3r 3 15r 1 2r 6 5 41r 6
1r 1 36r 6 75r 1 39r 6 4 32r 6 1 3 1 1r 3 16r 1 1r 6 5 41r 6
1 38r 6 74r 1 40r 6 4 31r 6 3 1r 1 2r 3 15r 1 1r 6 5 40r 6 1r 1
38r 6 74r 1 36r 3 3r 1 6 4 29r 6 1 3 1r 1 2r 3 15r 1 1r 6 5
39r 6 1r 1 39r 6 74r 1 36r 3 3r 1 1r 4 29r 6 1 3 2r 1 1r 3 15r 1
1r 6 5 39r 6 1 40r 6 74r 1 37r 3 3r 1 6 4 27r 6 1 1r 3 2r 1
3 16r 1 2r 6 5 37r 6 1r 1 40r 6 74r 1 38r 3 2r 1 6 4 26r 6 1r 1
3 2r 1 1r 3 16r 1 3 1 6 5 37r 6 1 41r 6 74r 1 40r 3 1 1r 6 4
24r 6 1r 1 1r 3 2r 1 1r 3 16r 1 3 1r 6 5 36r 6 1 42r 6 74r 1
44r 6 4 23r 6 1 2r 3 1 2r 3 17r 1 3 1r 1 6 5 33r 6 1r 1 42r 6
75r 1 45r 6 1r 4 19r 6 1r 1 6r 3 18r 1 3 2r 6 5 32r 6 2r 1 42r 6
75r 1 46r 6 2r 4 15r 6 3r 1 5r 3 19r 1 1r 3 1r 1 6 5 30r 6 1r 1
44r 6 75r 1 48r 6 2r 4 11r 6 4r 1 5r 3 21r 1 1r 3 1r 1 6 5 28r 6
1r 1 45r 6 76r 1 49r 6 3r 4 2r 6 9r 1 5r 3 22r 1 2r 3 1r 1 6
5 26r 6 1r 1 45r 6 77r 1 51r 6 12r 1 6r 3 24r 1 2r 3 1r 1 6
5 23r 6 2r 1 46r 6 77r 1 56r 6 5r 1 8r 3 25r 1 1r 3 1r 1 1r 6
5 21r 6 2r 1 46r 6 79r 1 69r 3 26r 1 2r 3 1r 1 1r 6 5 18r 6
2r 1 48r 6 79r 1 49r 3 6r 1 12r 3 27r 1 2r 3 1r 1 1r 6 1r 5
14r 6 3r 1 3r 3 1 43r 6 81r 1 47r 3 7r 1 13r 3 26r 1 2r 3 3r 1
6 3r 5 8r 6 4r 1 2r 3 4r 1 41r 6 82r 1 48r 3 6r 1 14r 3 26r 1
2r 3 3r 1 2r 6 11r 1 3r 3 5r 1 41r 6 84r 1 71r 3 24r 1 3r 3
3r 1 5r 6 2r 1 5r 3 7r 1 42r 6 85r 1 72r 3 21r 1 6r 3 1r 1 10r 3
10r 1 42r 6 87r 1 75r 3 17r 1 7r 3 7r 1 3 12r 1 41r 6 91r 1
79r 3 8r 1 13r 3 16r 1 42r 6 93r 1 107r 3 6r 1 44r 6 97r 1 155r 6
102r 1 149r 6 108r 1 144r 6 113r 1 138r 6 119r 1 132r 6 125r 1
58r 6 7r 1 59r 6 133r 1 48r 6 15r 1 51r 6 142r 1 39r 6 23r 1
42r 6 155r 1 24r 6 35r 1 34r 6 229r 1 17r 6 3501 0r 2 21r 6 228r 2
35r 6 215r 2 50r 6 202r 2 27r 3 6r 2 26r 6 190r 2 30r 3 15r 2
22r 6 183r 2 32r 3 16r 2 24r 6 178r 2 43r 3 7r 2 27r 6 173r 2
21r 6 17r 2 1r 6 1r 2 6r 3 1r 2 30r 6 169r 2 14r 6 4r 4 24r 6
6r 2 35r 6 166r 2 13r 6 1r 4 30r 6 1r 1 5r 6 4r 2 30r 6 162r 2
13r 6 1r 4 33r 6 1 5r 6 9r 2 16r 3 1r 2 7r 6 160r 2 11r 6 2r 4
35r 6 1 5r 6 3r 5 5r 6 11r 2 5r 3 1r 2 8r 6 156r 2 11r 6 2r 4
37r 6 1 4r 6 4r 5 17r 6 3r 2 2r 3 1r 2 8r 6 154r 2 10r 6 1r 4
40r 6 1 4r 6 2r 5 23r 6 1r 2 2r 3 2 9r 6 151r 2 9r 6 1r 4 41r 6
1r 1 4r 6 2r 5 25r 6 1r 2 1r 3 2 9r 6 148r 2 10r 6 4 42r 6 2r 1
5r 6 1r 5 27r 6 2 1r 3 2 9r 6 146r 2 10r 6 4 42r 6 1r 1 7r 6
1r 5 28r 6 2 13r 6 142r 2 11r 6 4 43r 1 9r 6 2r 5 28r 6 2 13r 6
140r 2 11r 6 4 43r 1 11r 6 1r 5 29r 6 2 13r 6 138r 2 12r 4 42r 6
1 12r 6 1r 5 30r 6 2 13r 6 136r 2 11r 6 1r 4 41r 1 15r 6 5 31r 6
2 13r 6 134r 2 11r 6 1r 4 40r 6 1 17r 6 5 31r 6 1r 2 12r 6 131r 2
12r 6 1r 4 40r 6 1 19r 5 32r 6 1r 2 13r 6 128r 2 12r 6 1r 4
40r 6 1 21r 6 5 31r 6 1r 2 13r 6 126r 2 12r 6 1r 4 40r 6 1 23r 6
5 31r 6 2 14r 6 124r 2 13r 6 4 40r 6 1 25r 5 32r 6 2 14r 6 122r 2
13r 6 4 41r 6 1 26r 5 31r 6 1r 2 14r 6 120r 2 14r 4 41r 6 1
27r 6 5 31r 6 1r 2 14r 6 119r 2 13r 6 4 40r 6 1 29r 6 1r 5 30r 6
1r 2 15r 6 116r 2 14r 4 40r 6 1 31r 6 1r 5 30r 6 2 16r 6 114r 2
14r 6 4 39r 6 1 32r 6 1r 5 30r 6 1r 2 16r 6 113r 2 13r 6 4 39r 6
1 34r 6 1r 5 30r 6 2 17r 6 111r 2 14r 4 39r 6 1 35r 6 1r 5 31r 6
2 17r 6 109r 2 15r 4 38r 6 1 36r 6 1r 5 31r 6 2 18r 6 109r 2
13r 4 38r 6 1 37r 6 1r 5 31r 6 1r 2 17r 6 111r 2 11r 4 37r 6
1 38r 6 1r 5 32r 6 2 18r 6 107r 1 2r 6 2r 2 8r 4 36r 6 1 40r 6
5 32r 6 1r 2 18r 6 105r 1 7r 6 2r 2 3r 6 4 36r 1 41r 6 5 33r 6
2 18r 6 104r 1 13r 6 2r 4 35r 6 1 41r 6 5 33r 6 2 19r 6 103r 1
15r 6 4 35r 6 1 42r 6 5 33r 6 2 17r 6 103r 1 16r 6 4 35r 6 1
42r 6 5 33r 6 2 3 2 11r 6 2r 1 2r 6 101r 1 16r 6 4 35r 6 1 43r 5
33r 6 2 3 2 7r 6 2r 1 7r 6 99r 1 17r 6 4 36r 6 1 42r 6 5 32r 6
2 3 1r 2 3r 6 2r 1 10r 6 99r 1 17r 6 4 38r 6 1 40r 6 5 33r 2
3 1r 2 1r 6 2r 1 13r 6 97r 1 18r 6 4 39r 6 1 39r 6 5 33r 6 2
3 6 1r 1 16r 6 97r 1 18r 6 4 40r 6 1 38r 5 35r 6 1r 1 19r 6
95r 1 19r 6 4 41r 6 1 37r 5 35r 6 1 20r 6 94r 1 20r 6 4 43r 6
1 4r 6 2r 1 27r 5 35r 6 1 3 1 18r 6 94r 1 20r 6 4 44r 6 1 1r 6
5r 1 25r 6 5 35r 6 1 3 1 19r 6 92r 1 21r 6 4 45r 6 1 1r 6 5r 1
24r 6 5 35r 6 1 3 1 19r 6 92r 1 21r 4 47r 6 9r 1 22r 5 36r 6
1 21r 6 92r 1 21r 4 49r 6 1 6 1r 1 1r 6 4r 1 19r 5 36r 6 1 21r 6
91r 1 22r 4 49r 6 1 8r 6 6r 1 13r 5 36r 6 1 22r 6 90r 1 22r 4
50r 1 11r 6 4r 1 11r 6 5 36r 6 1 22r 6 89r 1 23r 4 49r 6 1 12r 6
8r 1 6r 5 37r 6 1 22r 6 89r 1 23r 4 49r 6 1 19r 6 5r 1 1r 6
5 37r 6 1 22r 6 88r 1 24r 4 48r 6 1 24r 6 3r 5 38r 6 1 22r 6
88r 1 24r 4 48r 6 1 25r 6 1r 5 38r 6 1r 1 23r 6 87r 1 24r 4
48r 6 1 25r 5 40r 6 1 24r 6 86r 1 25r 4 48r 6 1 24r 5 41r 6
1 24r 6 86r 1 25r 4 47r 6 1r 1 22r 5 43r 6 1 24r 6 85r 1 26r 4
47r 6 1 21r 5 45r 6 1 24r 6 85r 1 26r 4 46r 6 1r 1 20r 5 45r 6
1r 1 24r 6 85r 1 26r 4 46r 6 1 19r 6 5 46r 6 1 26r 6 83r 1 25r 3
1 4 46r 6 1 18r 5 48r 6 1 26r 6 83r 1 25r 3 1 6 4 45r 6 1 17r 5
49r 6 1 26r 6 83r 1 25r 3 1r 6 4 44r 6 1 17r 5 50r 6 1 26r 6
82r 1 26r 3 1r 1 4 44r 6 8r 1 8r 6 5 50r 6 1 26r 6 82r 1 26r 3
1r 1 4 44r 6 2r 1 3r 6 2r 1 6 3r 1 2r 6 5 50r 6 1 26r 6 82r 1
26r 3 1r 1 6 4 43r 6 1r 1 11r 6 1r 1 6 1r 5 50r 6 1 26r 6 81r 1
28r 3 1r 6 4 43r 6 1 13r 6 2r 5 50r 6 1 28r 6 80r 1 28r 3 1r 1
4 43r 6 1 14r 6 1r 5 50r 6 1 28r 6 80r 1 28r 3 1r 1 4 43r 6
1 15r 6 5 50r 6 1 28r 6 79r 1 30r 3 1 6 4 41r 6 1 16r 6 5 49r 6
1r 1 28r 6 79r 1 30r 3 1 1r 4 40r 6 1r 1 16r 6 5 49r 6 1 29r 6
79r 1 30r 3 1r 1 4 40r 6 1 17r 6 5 49r 6 1 1r 3 1r 1 26r 6 78r 1
31r 3 1 6 4 39r 6 1 6r 3 3r 1 6r 6 5 48r 6 1 1r 3 1r 1 27r 6
77r 1 32r 3 1 6 4 39r 6 1 5r 3 5r 1 5r 6 5 48r 6 1 3 2r 1 27r 6
77r 1 33r 3 1 4 38r 6 1 5r 3 7r 1 5r 5 47r 6 1 3 3r 1 27r 6
77r 1 33r 3 1 6 4 37r 6 1 4r 3 9r 1 4r 5 47r 6 1 3 2r 1 28r 6
77r 1 35r 6 4 37r 6 1 3r 3 11r 1 3r 5 46r 6 1 3 3r 1 29r 6 75r 1
37r 4 37r 6 1 3r 3 11r 1 3r 6 5 44r 6 1r 1 3 2r 1 30r 6 75r 1
37r 6 4 36r 6 1 2r 3 13r 1 2r 6 5 44r 6 1 1r 3 2r 1 30r 6 75r 1
38r 4 36r 6 1 2r 3 13r 1 2r 6 5 44r 6 1 1r 3 1r 1 31r 6 75r 1
38r 6 4 34r 6 1 2r 3 15r 1 2r 5 43r 6 1r 1 1r 3 1r 1 31r 6 75r 1
39r 4 34r 6 1 2r 3 15r 1 2r 5 43r 6 1 36r 6 74r 1 40r 6 4 32r 6
1 3r 3 16r 1 1r 6 5 41r 6 1 38r 6 73r 1 41r 6 4 31r 6 1 3 1
1r 3 16r 1 1r 6 5 40r 6 1r 1 38r 6 73r 1 42r 4 30r 6 1 3 1r 1
1r 3 17r 1 6 5 40r 6 1 39r 6 73r 1 42r 6 4 29r 6 1 3 1r 1 2r 3

16r 1 6 5 39r 6 1 40r 6 73r 1 38r 3 3r 1 6 4 27r 6 1 1r 3 1r 1
1r 3 16r 1 2r 5 38r 6 1r 1 40r 6 73r 1 39r 3 2r 1 1r 4 27r 6
1 3 1r 1 2r 3 16r 1 2r 6 5 37r 6 1 41r 6 73r 1 40r 3 2r 1 6
4 25r 6 1 1r 3 1r 1 2r 3 15r 1 1r 3 1r 6 5 36r 6 1r 1 41r 6
73r 1 41r 3 1r 1 1r 6 4 23r 6 1 1r 3 2r 1 2r 3 15r 1 1r 3 1r 1
5 35r 6 1r 1 42r 6 73r 1 46r 6 4 21r 6 1r 1 3 2r 1 2r 3 16r 1
1r 3 1r 1 6 5 33r 6 1r 1 43r 6 74r 1 46r 6 1r 4 17r 6 2r 1 1r 3
2r 1 1r 3 17r 1 1r 3 2r 1 6 5 31r 6 1r 1 43r 6 75r 1 47r 6 2r 4
13r 6 3r 1 6r 3 19r 1 1r 3 1r 1 6 5 29r 6 2r 1 44r 6 75r 1 49r 6
2r 4 9r 6 4r 1 6r 3 20r 1 2r 3 1r 1 6 1r 5 26r 6 2r 1 45r 6
75r 1 51r 6 14r 1 6r 3 22r 1 2r 3 1r 1 6 5 25r 6 2r 1 46r 6
76r 1 54r 6 8r 1 7r 3 23r 1 2r 3 2r 1 6 5 23r 6 2r 1 46r 6 77r 1
70r 3 25r 1 2r 3 2r 1 6 5 20r 6 3r 1 47r 6 77r 1 70r 3 26r 1
1r 3 3r 1 6 2r 5 16r 6 2r 1 48r 6 79r 1 51r 3 6r 1 10r 3 27r 1
1r 3 3r 1 6 2r 5 12r 6 3r 1 49r 6 80r 1 50r 3 7r 1 11r 3 26r 1
2r 3 3r 1 1r 6 3r 5 5r 6 5r 1 50r 6 82r 1 51r 3 4r 1 13r 3 25r 1
3r 3 4r 1 1r 6 10r 1 53r 6 83r 1 71r 3 24r 1 3r 3 5r 1 16r 3
1 45r 6 84r 1 74r 3 20r 1 5r 3 8r 1 5r 3 6r 1 45r 6 87r 1 76r 3
15r 1 7r 3 19r 1 44r 6 90r 1 83r 3 4r 1 13r 3 3r 1 1r 3 8r 1
45r 6 93r 1 159r 6 97r 1 154r 6 103r 1 149r 6 108r 1 144r 6
112r 1 139r 6 119r 1 132r 6 126r 1 56r 6 8r 1 58r 6 134r 1 48r 6
15r 1 51r 6 144r 1 36r 6 24r 1 42r 6 156r 1 23r 6 35r 1 34r 6
231r 1 15r 6 35015r 2 13r 6 233r 2 29r 6 221r 2 22r 3 2 19r 6
208r 2 25r 3 4r 2 25r 6 196r 2 28r 3 12r 2 22r 6 187r 2 31r 3
16r 2 22r 6 181r 2 29r 6 2 6r 3 12r 2 25r 6 176r 2 29r 6 3r 2
13r 3 4r 2 28r 6 172r 2 4r 3 1r 2 7r 6 14r 4 3r 6 13r 2 36r 6
168r 2 5r 3 1r 2 5r 6 3r 4 27r 6 2r 1 3r 6 3r 2 31r 6 164r 2
14r 6 4 32r 6 1r 1 4r 6 7r 2 27r 6 162r 2 13r 6 1r 4 34r 1 5r 6
3r 5 3r 6 3r 2 25r 6 158r 2 7r 3 2 2r 6 3r 4 36r 1 4r 6 3r 5
9r 6 8r 2 16r 6 156r 2 7r 3 2 1r 6 1r 4 40r 1 4r 6 2r 5 20r 6
3r 2 2r 3 2 9r 6 152r 2 7r 3 1r 2 1r 6 4 42r 1 4r 6 2r 5 24r 6
1r 2 1r 3 2 9r 6 150r 2 7r 3 1r 2 6 4 43r 1 5r 6 1r 5 26r 6
1r 2 1r 3 2 10r 6 146r 2 9r 3 2 6 4 42r 6 1 6r 6 1r 5 28r 6
1r 2 3 2 10r 6 144r 2 11r 6 4 42r 6 1 7r 6 2r 5 28r 6 1r 2 3
2 10r 6 142r 2 9r 3 2 6 4 42r 1 10r 6 1r 5 29r 6 1r 2 3 2 10r 6
139r 2 12r 6 4 42r 1 12r 6 5 30r 6 1r 2 13r 6 136r 2 12r 6 4
42r 1 13r 6 1r 5 30r 6 1r 2 13r 6 134r 2 13r 4 41r 6 1 15r 6
5 31r 6 1r 2 13r 6 132r 2 13r 4 41r 6 1 16r 6 5 32r 6 1r 2 13r 6
130r 2 13r 4 41r 6 1 17r 6 1r 5 32r 6 2 14r 6 128r 2 13r 4 41r 6
1 19r 6 1r 5 32r 6 2 15r 6 125r 2 13r 6 4 40r 6 1 21r 6 1r 5
32r 6 2 15r 6 123r 2 13r 6 4 40r 6 1 24r 6 5 32r 6 2 15r 6 121r 2
13r 6 4 40r 6 1r 1 26r 5 31r 6 1r 2 15r 6 119r 2 14r 4 40r 6
1r 1 28r 5 31r 6 2 16r 6 117r 2 14r 6 4 40r 6 1 29r 6 5 31r 6
2 16r 6 115r 2 14r 6 4 40r 6 1 31r 5 32r 6 2 16r 6 114r 2 14r 4
40r 6 1 32r 6 5 31r 6 1r 2 16r 6 112r 2 15r 4 39r 6 1 33r 6
5 32r 6 2 17r 6 110r 2 15r 6 4 38r 6 1 34r 6 1r 5 32r 6 2 17r 6
110r 2 14r 4 38r 6 1 36r 6 5 32r 6 2 18r 6 113r 2 9r 6 4 36r 6
2r 1 36r 6 5 33r 6 2 18r 6 106r 1 4r 6 2r 2 7r 6 4 35r 6 2r 1
37r 6 5 33r 6 2 19r 6 105r 1 7r 6 3r 2 3r 6 4 35r 6 1 39r 6
5 34r 2 20r 6 103r 1 12r 6 4r 4 34r 6 1 41r 5 34r 6 2 19r 6
102r 1 16r 6 4 35r 6 1 41r 6 5 33r 6 2 16r 6 105r 1 17r 4 35r 6
1 41r 6 5 33r 6 2 12r 6 4r 1 3r 6 99r 1 18r 4 35r 6 1 42r 6
5 33r 6 2 8r 6 3r 1 7r 6 99r 1 17r 6 4 36r 6 1 41r 6 5 33r 6
2 5r 6 3r 1 11r 6 97r 1 18r 6 4 36r 6 1r 1 40r 6 5 33r 6 2 3r 6
2r 1 14r 6 97r 1 18r 6 4 38r 6 1 39r 6 5 34r 6 2 1r 6 1r 1 17r 6
95r 1 19r 6 4 40r 6 1 37r 6 5 35r 6 1r 1 19r 6 95r 1 19r 6 4
41r 6 1 36r 6 5 35r 1 21r 6 94r 1 20r 6 4 42r 6 1 35r 6 5 34r 6
1 3 1r 1 19r 6 92r 1 21r 4 44r 6 1 34r 5 35r 6 1 3 1r 1 19r 6
92r 1 21r 4 45r 6 1r 1 32r 5 35r 6 1 3 1r 1 19r 6 91r 1 22r 4
46r 6 1r 1 30r 6 5 35r 6 1 3 1r 1 19r 6 91r 1 22r 4 47r 6 1r 1
29r 6 5 35r 6 1 1r 3 1 20r 6 89r 1 23r 6 4 46r 6 2r 1 28r 6
5 35r 6 1 1r 3 1 20r 6 89r 1 23r 6 4 46r 6 2r 1 28r 5 36r 6
1 23r 6 89r 1 23r 6 4 46r 6 2r 1 17r 6 4r 1 4r 6 5 36r 6 1 23r 6
88r 1 24r 6 4 47r 6 1 21r 6 5r 1 5 37r 6 1 23r 6 88r 1 24r 6
4 46r 6 1r 1 26r 6 5 38r 6 1 24r 6 86r 1 25r 6 4 47r 6 1 26r 5
39r 6 1 24r 6 86r 1 25r 6 4 46r 6 1r 1 25r 5 40r 6 1 24r 6 85r 1
26r 6 4 46r 6 1r 1 24r 5 41r 6 1 24r 6 85r 1 26r 6 4 46r 6 1
23r 5 42r 6 1r 1 24r 6 85r 1 26r 6 4 45r 6 1r 1 21r 5 44r 6
1 26r 6 83r 1 27r 6 4 45r 6 1r 1 20r 5 45r 6 1 26r 6 83r 1 27r 6
4 45r 6 1 19r 5 47r 6 1 26r 6 82r 1 28r 6 4 45r 6 1 18r 5 48r 6
1 26r 6 82r 1 29r 4 44r 6 1r 1 17r 5 49r 6 1 26r 6 82r 1 29r 4
44r 6 1 17r 5 49r 6 1r 1 26r 6 82r 1 29r 4 44r 6 12r 1 4r 6
5 49r 6 1r 1 26r 6 81r 1 28r 3 1 6 4 43r 6 1r 1 10r 6 2r 1 1r 5
50r 6 1 28r 6 80r 1 28r 3 1 1r 4 43r 6 1r 1 12r 6 1r 5 51r 6
1 28r 6 80r 1 28r 3 1r 1 4 42r 6 1r 1 14r 6 5 51r 6 1 28r 6
79r 1 29r 3 1r 1 6 4 41r 6 1r 1 14r 6 5 50r 6 1r 1 28r 6 79r 1
30r 3 1r 6 4 41r 6 1 16r 5 50r 6 1 29r 6 79r 1 30r 3 1r 1 4
41r 6 1 16r 6 5 49r 6 1 30r 6 78r 1 30r 3 1r 1 6 4 40r 6 1 16r 6
5 49r 6 1 30r 6 77r 1 31r 3 1r 1 6 4 39r 6 1 17r 6 5 48r 6 1
31r 6 77r 1 32r 3 1r 1 4 39r 6 1 6r 3 4r 1 5r 6 5 48r 6 1 31r 6
77r 1 32r 3 1r 1 6 4 38r 6 1 4r 3 7r 1 4r 6 5 47r 6 1r 1 1r 3
1r 1 27r 6 77r 1 33r 3 1 6 4 38r 6 1 4r 3 8r 1 4r 5 47r 6 1
1r 3 1r 1 29r 6 75r 1 34r 3 1 1r 4 37r 6 1 4r 3 9r 1 4r 5 46r 6
1r 1 3 2r 1 29r 6 75r 1 35r 3 1 6 4 36r 6 1 3r 3 11r 1 3r 6
5 45r 6 1 3 2r 1 30r 6 75r 1 35r 3 1 6 4 36r 6 1 2r 3 12r 1
3r 6 5 44r 6 1 3 3r 1 30r 6 75r 1 38r 4 36r 6 1 2r 3 13r 1 2r 6
5 44r 6 1 3 3r 1 30r 6 75r 1 38r 6 4 35r 6 1 1r 3 14r 1 2r 6
5 43r 6 1 1r 3 2r 1 32r 6 73r 1 40r 6 4 33r 6 1 2r 3 15r 1 2r 5
43r 6 1 3 3r 1 32r 6 73r 1 40r 6 4 33r 6 1 2r 3 15r 1 2r 6 5
41r 6 1r 1 3 2r 1 33r 6 73r 1 41r 6 4 31r 6 1 3r 3 16r 1 1r 6
5 40r 6 1r 1 1r 3 1r 1 34r 6 73r 1 41r 6 4 31r 6 1 3r 3 16r 1
1r 6 5 40r 6 1 2r 3 1 35r 6 73r 1 42r 6 4 29r 6 1 3 1r 1 1r 3
17r 1 6 5 39r 6 1r 1 39r 6 73r 1 43r 6 4 28r 6 1 3 1r 1 1r 3
17r 1 6 5 38r 6 1r 1 41r 6 72r 1 44r 4 26r 6 1r 1 1r 3 1 2r 3
16r 1 2r 6 5 37r 6 1 42r 6 72r 1 40r 3 2r 1 6 4 25r 6 1 1r 3
1r 1 2r 3 16r 1 2r 6 5 36r 6 1r 1 41r 6 73r 1 40r 3 3r 1 6 4
23r 6 1r 1 1r 3 1r 1 1r 3 16r 1 1r 3 1r 6 5 35r 6 1r 1 42r 6
73r 1 41r 3 2r 1 1r 6 4 21r 6 1r 1 1r 3 1r 1 1r 3 17r 1 1r 3
1r 1 5 34r 6 1r 1 43r 6 73r 1 43r 3 1 2r 6 1r 4 17r 6 2r 1 1r 3
2r 1 1r 3 17r 1 1r 3 1r 1 6 5 32r 6 1r 1 44r 6 73r 1 48r 6 2r 4
14r 6 2r 1 1r 3 2r 1 1r 3 18r 1 1r 3 2r 1 5 31r 6 1r 1 45r 6
73r 1 50r 6 2r 4 10r 6 3r 1 1r 3 3r 1 3 20r 1 1r 3 2r 6 1r 5
28r 6 1r 1 46r 6 74r 1 51r 6 14r 1 2r 3 2r 1 1r 3 21r 1 3 2r 1
6 1r 5 26r 6 1r 1 46r 6 75r 1 54r 6 10r 1 2r 3 3r 1 3 22r 1
1r 3 2r 1 6 1r 5 24r 6 1r 1 47r 6 75r 1 58r 6 3r 1 3r 3 29r 1
2r 3 2r 1 6 1r 5 21r 6 2r 1 48r 6 76r 1 63r 3 2r 1 3 1 1r 3
25r 1 1r 3 3r 1 6 1r 5 18r 6 3r 1 48r 6 77r 1 57r 3 5r 1 6r 3
26r 1 1r 3 3r 1 6 2r 5 15r 6 2r 1 49r 6 79r 1 53r 3 8r 1 7r 3
26r 1 1r 3 3r 1 1r 6 2r 5 10r 6 3r 1 51r 6 79r 1 53r 3 7r 1
9r 3 25r 1 2r 3 3r 1 2r 6 13r 1 52r 6 81r 1 71r 3 24r 1 3r 3
3r 1 3r 6 8r 1 54r 6 82r 1 73r 3 22r 1 5r 3 3r 1 64r 6 84r 1
75r 3 19r 1 9r 3 1 2r 3 2r 1 56r 6 87r 1 77r 3 12r 1 16r 3 5r 1
52r 6 89r 1 85r 3 1 76r 6 93r 1 159r 6 97r 1 154r 6 103r 1 149r 6
107r 1 145r 6 113r 1 138r 6 119r 1 132r 6 126r 1 55r 6 9r 1
58r 6 135r 1 45r 6 17r 1 50r 6 146r 1 34r 6 25r 1 42r 6 157r 1
21r 6 37r 1 32r 6 234r 1 11r 6 35023r 2 1r 6 244r 2 19r 6 229r 2
34r 6 217r 2 23r 3 1r 2 20r 6 205r 2 26r 3 8r 2 23r 6 192r 2
29r 3 14r 2 22r 6 185r 2 27r 6 1r 2 3r 3 14r 2 24r 6 179r 2
29r 6 2 11r 3 7r 2 26r 6 175r 2 4r 3 1r 2 11r 6 14r 2 5r 6 1r 2
6r 3 2r 2 29r 6 171r 2 4r 3 2r 2 6r 6 4r 4 15r 6 14r 2 34r 6
168r 2 4r 3 2r 2 5r 6 2r 4 27r 6 3r 1 1r 6 7r 2 29r 6 164r 2
5r 3 1r 2 5r 6 1r 4 32r 6 1 4r 6 10r 2 26r 6 161r 2 5r 3 1r 2
4r 6 2r 4 33r 6 1 3r 6 4r 5 6r 6 6r 2 21r 6 157r 2 6r 3 1r 2
1r 6 2r 4 38r 1 3r 6 3r 5 15r 6 5r 2 15r 6 154r 2 7r 3 1r 2
1r 4 42r 1 3r 6 3r 5 21r 6 2r 2 14r 6 151r 2 7r 3 2 1r 6 4 42r 6
1 3r 6 2r 5 25r 6 1r 2 13r 6 148r 2 8r 3 2 1r 6 4 42r 6 1 4r 6
2r 5 26r 6 1r 2 13r 6 146r 2 8r 3 2 1r 6 4 41r 6 1r 1 6r 6 5
29r 6 1r 2 3 2 11r 6 143r 2 8r 3 2 1r 6 4 41r 6 1 8r 6 1r 5
29r 6 1r 2 3 2 11r 6 140r 2 9r 3 2 1r 6 4 41r 6 1 10r 6 5 30r 6
1r 2 3 2 11r 6 138r 2 9r 3 1r 2 6 4 41r 6 1 11r 6 1r 5 31r 6
2 13r 6 136r 2 10r 3 2 6 4 41r 6 1 13r 6 5 32r 6 2 13r 6 133r 2
11r 3 2 1r 4 40r 6 1r 1 14r 6 1r 5 31r 6 1r 2 14r 6 130r 2 11r 3
2 1r 4 40r 6 1 17r 6 5 32r 6 1r 2 14r 6 128r 2 14r 6 4 40r 1
19r 5 33r 6 2 15r 6 126r 2 14r 6 4 40r 1 20r 6 5 33r 6 2 15r 6
124r 2 14r 6 4 40r 1 22r 6 5 33r 6 2 15r 6 122r 2 15r 4 40r 6
1 23r 6 5 33r 6 2 16r 6 119r 2 15r 4 40r 6 1 25r 6 5 32r 6 1r 2
16r 6 117r 2 15r 6 4 39r 6 1 27r 6 5 32r 6 2 17r 6 116r 2 14r 6
4 39r 6 1 29r 6 5 32r 6 2 17r 6 114r 2 15r 4 39r 6 1 30r 6 1r 5
32r 6 2 17r 6 112r 2 15r 6 4 39r 1 32r 6 5 33r 6 2 17r 6 111r 2
15r 4 39r 1 33r 6 5 33r 6 2 18r 6 112r 2 13r 4 38r 1 34r 6 1r 5
33r 6 2 18r 6 108r 1 2r 6 1r 2 10r 6 4 36r 6 1 36r 6 5 33r 6
2 19r 6 106r 1 6r 6 1r 2 7r 4 36r 6 1 37r 6 5 34r 6 2 19r 6
105r 1 8r 6 4r 2 1r 6 4 35r 6 1 38r 6 5 34r 6 2 20r 6 103r 1
12r 6 4r 4 35r 1 40r 5 34r 6 2 20r 6 102r 1 16r 6 1r 4 34r 6
1 40r 6 5 34r 6 2 16r 6 105r 1 17r 6 4 34r 6 1 40r 6 5 34r 6
2 13r 6 2r 1 4r 6 99r 1 18r 6 4 34r 6 1 41r 6 5 33r 6 2 10r 6
3r 1 6r 6 98r 1 19r 6 4 35r 1 41r 6 5 34r 6 2 6r 6 3r 1 10r 6
97r 1 19r 6 4 35r 6 1 41r 5 34r 6 2 4r 6 2r 1 13r 6 96r 1 20r 6
4 36r 6 1r 1 39r 5 34r 6 1r 2 1r 6 3r 1 15r 6 94r 1 21r 4 39r 6
1 38r 5 34r 6 4r 1 18r 6 94r 1 21r 4 40r 6 1 37r 5 34r 6 1r 1
21r 6 93r 1 22r 4 41r 6 1 36r 5 35r 6 1 3 1 20r 6 92r 1 22r 4
42r 6 1 34r 6 5 35r 6 1 3 1 20r 6 91r 1 23r 4 43r 6 1 33r 6
5 35r 6 1 3 1 20r 6 90r 1 23r 6 4 44r 6 1 32r 6 5 35r 6 1 3
1r 1 20r 6 89r 1 23r 6 4 45r 6 1 31r 6 5 35r 6 1 3 1r 1 20r 6
88r 1 24r 6 4 46r 6 1 30r 5 36r 6 1 3 1r 1 20r 6 88r 1 25r 4
46r 6 1 21r 6 1 6r 6 5 36r 6 1 3 1r 1 20r 6 87r 1 26r 4 46r 6
1 20r 6 4r 1 3r 6 5 36r 6 1 3 1 21r 6 87r 1 26r 4 46r 6 1 24r 6
4r 5 37r 6 1 3 1 22r 6 86r 1 26r 4 46r 6 1 27r 5 38r 6 1 1r 3
1 22r 6 85r 1 27r 4 45r 6 1r 1 26r 6 5 38r 6 1 1r 3 1 22r 6
85r 1 27r 4 46r 6 1 25r 6 5 39r 6 1 25r 6 84r 1 28r 4 46r 6
1 24r 6 5 40r 6 1 26r 6 83r 1 28r 4 46r 6 1 23r 5 42r 6 1 26r 6
82r 1 29r 4 45r 6 1r 1 21r 5 44r 6 1 26r 6 82r 1 29r 4 45r 6
1 20r 6 5 45r 6 1 26r 6 81r 1 30r 4 45r 6 1 19r 5 46r 6 1r 1
26r 6 81r 1 30r 6 4 43r 6 1r 1 18r 5 47r 6 1r 1 26r 6 81r 1
30r 6 4 43r 6 1 18r 5 48r 6 1 28r 6 79r 1 31r 6 4 44r 1 1r 6
4r 1 10r 5 49r 6 1 28r 6 79r 1 32r 4 44r 6 2r 1 6 8r 1 3r 5
50r 6 1 28r 6 79r 1 32r 4 43r 6 1r 1 11r 6 1r 1 1r 5 49r 6 1r 1
28r 6 79r 1 32r 4 43r 6 1r 1 12r 6 1r 5 50r 6 1 29r 6 78r 1
33r 6 4 42r 6 1 14r 6 5 50r 6 1 29r 6 78r 1 34r 4 41r 6 1r 1
14r 6 5 50r 6 1 30r 6 77r 1 34r 4 41r 6 1 16r 5 50r 6 1 30r 6
77r 1 32r 3 1 6 4 40r 6 1 16r 6 5 48r 6 1r 1 30r 6 76r 1 33r 3
1 6 4 39r 6 1r 1 16r 6 5 48r 6 1 31r 6 76r 1 33r 3 1r 1 4 39r 6
1r 1 16r 6 5 48r 6 1 31r 6 76r 1 33r 3 1r 1 6 4 38r 6 1 6r 3
4r 1 5r 6 5 47r 6 1r 1 32r 6 75r 1 33r 3 1r 1 1r 4 38r 6 1 4r 3
7r 1 4r 6 5 47r 6 1 33r 6 75r 1 34r 3 1r 1 6 4 37r 6 1 3r 3
9r 1 4r 5 46r 6 1r 1 33r 6 75r 1 34r 3 1r 1 1r 4 37r 6 1 3r 3
9r 1 4r 5 46r 6 1 2r 3 1 30r 6 74r 1 35r 3 1r 1 1r 6 4 36r 6
1 2r 3 11r 1 3r 6 5 44r 6 1r 1 3 2r 1 30r 6 74r 1 36r 3 1r 1
6 4 36r 1 2r 3 13r 1 2r 6 5 44r 6 1 3 3r 1 31r 6 73r 1 37r 3
1 1r 4 35r 6 1 2r 3 13r 1 2r 6 5 43r 6 1 1r 3 2r 1 32r 6 73r 1
38r 3 1 6 4 34r 6 1 1r 3 15r 1 2r 5 43r 6 1 3 3r 1 32r 6 73r 1
41r 4 33r 6 1 2r 3 15r 1 2r 6 5 41r 6 1 1r 3 2r 1 33r 6 73r 1
41r 6 4 32r 6 1 1r 3 17r 1 1r 6 5 41r 6 1 1r 3 2r 1 33r 6 73r 1
41r 6 4 31r 6 1 2r 3 17r 1 1r 6 5 40r 6 1 1r 3 2r 1 35r 6 72r 1
42r 6 4 30r 6 1 2r 3 18r 1 6 5 39r 6 1r 1 3 3r 1 35r 6 72r 1
43r 6 4 28r 6 1 3r 3 18r 1 1r 5 39r 6 1 1r 3 2r 1 36r 6 72r 1
43r 6 1r 4 26r 6 1 2r 3 20r 1 1r 5 38r 6 1r 1 1r 3 1r 1 37r 6
72r 1 44r 6 4 25r 6 1r 1 1r 3 21r 1 1r 6 5 36r 6 1r 1 42r 6
72r 1 45r 6 4 23r 6 1r 1 1r 3 22r 1 1r 6 5 36r 6 1 43r 6 72r 1
41r 3 2r 1 1r 6 4 22r 6 1 2r 3 21r 1 3 1r 1 5 35r 6 1r 1 43r 6
72r 1 42r 3 3r 1 6 4 19r 6 1r 1 2r 3 22r 1 3 1r 1 5 34r 6 1r 1
44r 6 72r 1 43r 3 2r 1 1r 6 1r 4 16r 6 2r 1 1r 3 23r 1 3 1r 1
6 5 32r 6 1r 1 44r 6 73r 1 45r 3 1 2r 6 3r 4 12r 6 2r 1 1r 3
24r 1 3 2r 1 6 5 29r 6 2r 1 45r 6 73r 1 52r 6 3r 4 1r 6 8r 1
2r 3 29r 1 6 1r 5 27r 6 2r 1 46r 6 73r 1 54r 6 11r 1 2r 3 31r 1
6 1r 5 25r 6 2r 1 47r 6 74r 1 57r 6 5r 1 3r 3 33r 1 6 2r 5 22r 6
1r 1 48r 6 75r 1 65r 3 4r 1 3 29r 1 1r 6 2r 5 20r 6 1r 1 49r 6
75r 1 62r 3 6r 1 1r 3 30r 1 2r 6 1r 5 16r 6 3r 1 49r 6 77r 1
59r 3 7r 1 2r 3 26r 1 1r 3 2r 1 2r 6 2r 5 13r 6 3r 1 50r 6 77r 1
57r 3 7r 1 5r 3 26r 1 1r 3 2r 1 3r 6 3r 5 7r 6 3r 1 52r 6 79r 1
58r 3 2r 1 9r 3 25r 1 4r 3 1 4r 6 11r 1 53r 6 80r 1 73r 3 24r 1
4r 3 1 8r 6 1 58r 6 82r 1 74r 3 21r 1 74r 6 84r 1 75r 3 18r 1
74r 6 86r 1 80r 3 9r 1 76r 6 89r 1 163r 6 93r 1 159r 6 97r 1
154r 6 103r 1 149r 6 107r 1 145r 6 113r 1 138r 6 119r 1 132r 6
127r 1 53r 6 10r 1 58r 6 136r 1 43r 6 18r 1 50r 6 147r 1 33r 6
26r 1 41r 6 159r 1 18r 6 39r 1 31r 6 235r 1 10r 6 35274r 2 10r 6
238r 2 25r 6 224r 2 38r 6 213r 2 25r 3 4r 2 19r 6 202r 2 26r 3
11r 2 22r 6 190r 2 30r 3 14r 2 23r 6 183r 2 37r 3 9r 2 25r 6
179r 2 44r 3 5r 2 27r 6 174r 2 4r 3 1r 2 9r 6 27r 2 37r 6 170r 2
5r 3 1r 2 6r 6 6r 4 12r 6 11r 1 6 6r 2 31r 6 166r 2 6r 3 1r 2
5r 6 3r 4 27r 6 1r 1 4r 6 7r 2 28r 6 163r 2 6r 3 2 5r 6 2r 4
30r 6 1r 1 3r 6 3r 5 5r 6 3r 2 24r 6 160r 2 7r 3 2 2r 6 4r 4
32r 6 1r 1 3r 6 3r 5 9r 6 7r 2 18r 6 157r 2 10r 6 2r 4 36r 6
1r 1 3r 6 2r 5 18r 6 4r 2 15r 6 153r 2 11r 6 1r 4 38r 6 1r 1
2r 6 2r 5 24r 6 2r 2 13r 6 151r 2 10r 6 1r 4 40r 6 1r 1 3r 6
1r 5 26r 6 1r 2 13r 6 148r 2 11r 6 1r 4 40r 6 1 5r 6 2r 5 27r 6

1r 2 13r 6 145r 2 11r 6 4 41r 6 1 6r 6 2r 5 28r 6 1r 2 13r 6 142r 2 12r 6 4 41r 1 9r 6 1r 5 30r 6 2 13r 6 140r 2 12r 6 4 41r 1 10r 6 2r 5 30r 6 2 14r 6 136r 2 13r 6 4 41r 1 12r 6 1r 5 31r 6 2 14r 6 134r 2 14r 4 40r 6 1 13r 6 2r 5 31r 6 2 14r 6 132r 2 10r 3 2 2r 6 4 39r 6 1 15r 6 1r 5 32r 6 2 14r 6 130r 2 11r 3 2 1r 6 4 39r 6 1 16r 6 1r 5 33r 6 2 14r 6 128r 2 11r 3 2 1r 6 4 40r 1 18r 6 5 33r 6 1r 2 15r 6 125r 2 11r 3 2 1r 6 4 40r 6 1 19r 6 5 33r 6 2 16r 6 123r 2 12r 3 2 6 4 40r 6 1 20r 6 1r 5 33r 6 2 16r 6 121r 2 12r 3 2 1r 6 4 39r 6 1 22r 6 1r 5 33r 6 2 16r 6 119r 2 12r 3 2 1r 6 4 39r 6 1 24r 6 5 33r 6 1r 2 16r 6 117r 2 13r 3 2 6 4 39r 6 1 26r 6 5 33r 6 2 18r 6 114r 2 13r 3 2 1r 6 4 38r 6 1 28r 6 5 33r 6 2 18r 6 112r 2 14r 3 2 6 4 38r 6 1 29r 6 5 33r 6 1r 2 18r 6 112r 2 13r 3 2 6 4 38r 1 31r 6 5 33r 6 2 19r 6 113r 2 10r 3 2 6 4 38r 1 32r 6 5 34r 6 2 19r 6 108r 1 2r 6 3r 2 7r 3 2 6 4 36r 6 1r 1 33r 6 5 33r 6 2 20r 6 106r 1 7r 6 3r 2 4r 6 1r 4 35r 6 1r 1 34r 6 5 34r 6 2 20r 6 104r 1 10r 6 5r 2 6 4 35r 6 1r 1 35r 6 5 34r 6 2 21r 6 103r 1 13r 6 4r 4 34r 6 1r 1 36r 6 5 35r 6 2 20r 6 102r 1 18r 6 4 34r 6 1 38r 6 5 34r 6 2 19r 6 102r 1 19r 6 4 33r 6 1 39r 6 5 34r 6 2 14r 6 3r 1 3r 6 99r 1 19r 6 4 33r 6 1 40r 6 5 34r 6 2 10r 6 3r 1 6r 6 98r 1 20r 6 4 34r 1 40r 6 5 34r 6 2 7r 6 3r 1 10r 6 96r 1 21r 4 35r 6 1 40r 5 35r 6 2 4r 6 2r 1 13r 6 95r 1 21r 6 4 36r 6 1 39r 6 5 34r 6 2 1r 6 3r 1 16r 6 94r 1 21r 6 4 37r 6 1 38r 6 5 35r 6 2r 1 19r 6 93r 1 22r 6 4 38r 6 1 37r 6 5 35r 6 1 22r 6 91r 1 23r 6 4 38r 6 1r 1 36r 6 5 35r 6 1 22r 6 90r 1 24r 6 4 39r 6 1r 1 35r 6 5 34r 6 1r 1 22r 6 89r 1 25r 6 4 40r 6 1r 1 34r 6 5 34r 6 1r 1 3 1 21r 6 88r 1 25r 6 4 41r 6 1r 1 33r 5 36r 6 1 3 1 21r 6 87r 1 26r 6 4 42r 6 1r 1 32r 5 35r 6 1 3 1r 1 21r 6 86r 1 27r 6 4 42r 6 1r 1 32r 5 35r 6 1 3 1r 1 21r 6 85r 1 28r 6 4 43r 6 1 22r 6 1r 1 6r 6 5 35r 6 1 3 1r 1 22r 6 84r 1 28r 6 4 43r 6 1r 1 22r 6 4r 1 2r 5 36r 6 1 3 1r 1 22r 6 83r 1 29r 6 4 43r 6 1r 1 26r 6 3r 5 36r 6 1 3 1r 1 22r 6 83r 1 29r 6 4 43r 6 1r 1 28r 5 38r 6 1 3 1r 1 22r 6 83r 1 29r 6 4 43r 6 1r 1 27r 6 5 38r 6 1 3 1r 1 23r 6 81r 1 30r 6 4 43r 6 1r 1 26r 6 5 39r 6 1 3 1r 1 23r 6 81r 1 30r 6 4 44r 6 1r 1 24r 6 5 40r 6 1 3 1r 1 23r 6 80r 1 31r 6 4 44r 6 1r 1 23r 5 42r 6 1 3 1 24r 6 80r 1 31r 6 4 44r 6 1r 1 21r 5 43r 6 1 1r 3 1 24r 6 78r 1 33r 6 4 43r 6 1r 1 20r 5 45r 6 1 27r 6 78r 1 33r 6 4 43r 6 1r 1 19r 5 46r 6 1 28r 6 77r 1 34r 6 4 42r 6 1 19r 5 47r 6 1 28r 6 77r 1 34r 6 4 42r 6 1 18r 5 48r 6 1 28r 6 77r 1 34r 6 4 42r 6 9r 1 8r 5 49r 6 1 28r 6 77r 1 34r 6 4 42r 6 2r 1 2r 6 8r 1 2r 6 5 48r 6 1r 1 28r 6 77r 1 34r 6 4 41r 6 2r 1 11r 6 1r 1 1r 5 49r 6 1 29r 6 76r 1 35r 6 4 41r 6 1r 1 13r 6 2r 5 49r 6 1 29r 6 76r 1 36r 6 4 40r 6 1r 1 14r 6 1r 5 48r 6 1r 1 30r 6 75r 1 36r 6 4 40r 6 1 16r 6 5 48r 6 1 31r 6 75r 1 36r 6 4 39r 6 1r 1 16r 5 49r 6 1 31r 6 75r 1 37r 6 4 38r 6 1r 1 16r 5 49r 6 1 31r 6 75r 1 37r 6 4 38r 6 1r 1 16r 6 5 47r 6 1r 1 31r 6 75r 1 37r 6 1r 4 37r 6 1r 1 7r 3 1r 1 6r 6 5 47r 6 1 33r 6 74r 1 38r 6 4 37r 6 1 6r 3 4r 1 5r 6 5 47r 6 1 33r 6 74r 1 38r 6 4 37r 6 1 4r 3 7r 1 4r 6 5 46r 6 1r 1 33r 6 74r 1 35r 3 1 2r 6 4 36r 6 1 3r 3 9r 1 4r 5 46r 6 1 34r 6 74r 1 35r 3 1 2r 6 4 36r 6 1 3r 3 10r 1 3r 5 45r 6 1r 1 35r 6 73r 1 35r 3 1r 1 2r 4 36r 6 1 2r 3 11r 1 3r 6 5 44r 6 1 36r 6 73r 1 36r 3 1r 1 1r 6 4 34r 6 1r 1 1r 3 13r 1 2r 6 5 43r 6 1r 1 1r 3 1r 1 32r 6 72r 1 38r 3 1r 1 6 4 34r 6 1 1r 3 14r 1 2r 6 5 43r 6 1 1r 3 2r 1 32r 6 72r 1 38r 3 2r 1 6 4 33r 6 1 1r 3 15r 1 2r 5 42r 6 1r 1 3 2r 1 33r 6 72r 1 39r 3 1r 1 6 4 32r 6 1 2r 3 15r 1 1r 6 1r 5 41r 6 1 3 3r 1 34r 6 71r 1 43r 4 31r 6 1r 1 1r 3 17r 1 6 1r 5 40r 6 1 1r 3 2r 1 35r 6 71r 1 43r 6 4 30r 6 1 2r 3 17r 1 1r 6 5 40r 6 1 3 3r 1 35r 6 71r 1 43r 6 1r 4 28r 6 1 3r 3 18r 1 1r 5 39r 6 1 1r 3 2r 1 36r 6 71r 1 44r 6 4 27r 6 1r 1 2r 3 19r 1 1r 5 38r 6 1r 1 3 3r 1 36r 6 71r 1 45r 6 1r 4 25r 6 1 2r 3 21r 1 5 38r 6 1 1r 3 2r 1 37r 6 71r 1 46r 6 4 23r 6 1r 1 3r 3 21r 1 6 5 36r 6 1r 1 1r 3 1r 1 38r 6 71r 1 47r 6 1r 4 20r 6 2r 1 2r 3 22r 1 6 5 35r 6 1r 1 2r 3 1 39r 6 71r 1 48r 6 1r 4 17r 6 3r 1 2r 3 23r 1 1r 5 34r 6 1r 1 44r 6 71r 1 44r 3 3r 1 6 2r 4 13r 6 4r 1 2r 3 25r 1 5 33r 6 1r 1 45r 6 72r 1 44r 3 2r 1 1r 6 3r 4 9r 6 5r 1 2r 3 26r 1 6 5 31r 6 1r 1 46r 6 72r 1 45r 3 2r 1 2r 6 5r 4 2r 6 7r 1 2r 3 27r 1 1r 6 5 29r 6 1r 1 47r 6 72r 1 54r 6 11r 1 3r 3 28r 1 1r 6 1r 5 27r 6 1r 1 47r 6 73r 1 57r 6 6r 1 4r 3 30r 1 2r 6 5 24r 6 2r 1 48r 6 73r 1 68r 3 2r 1 3 28r 1 2r 6 1r 5 21r 6 2r 1 49r 6 74r 1 65r 3 3r 1 1r 3 28r 1 3r 6 1r 5 18r 6 2r 1 50r 6 75r 1 64r 3 3r 1 2r 3 28r 1 4r 6 2r 5 15r 6 2r 1 51r 6 75r 1 63r 3 4r 1 3r 3 26r 1 7r 6 2r 5 10r 6 4r 1 51r 6 77r 1 61r 3 3r 1 6r 3 25r 1 9r 6 4r 5 3r 6 4r 1 53r 6 78r 1 73r 3 25r 1 11r 6 7r 1 55r 6 80r 1 73r 3 24r 1 75r 6 81r 1 74r 3 21r 1 75r 6 83r 1 76r 3 16r 1 76r 6 85r 1 81r 3 7r 1 77r 6 89r 1 163r 6 92r 1 160r 6 97r 1 155r 6 101r 1 150r 6 107r 1 145r 6 113r 1 138r 6 120r 1 131r 6 128r 1 52r 6 10r 1 58r 6 136r 1 43r 6 18r 1 51r 6 147r 1 32r 6 26r 1 41r 6 160r 1 16r 6 40r 1 31r 6 235r 1 10r 6 35527r 2 16r 6 233r 2 29r 6 221r 2 24r 3 2 15r 6 211r 2 25r 3 7r 2 18r 6 199r 2 28r 3 12r 2 21r 6 188r 2 34r 3 10r 2 24r 6 182r 2 39r 3 8r 2 26r 6 177r 2 21r 6 9r 2 14r 3 3r 2 28r 6 173r 2 6r 3 2 8r 6 5r 4 10r 6 12r 2 36r 6 170r 2 5r 3 1r 2 6r 6 2r 4 24r 6 12r 2 30r 6 166r 2 6r 3 1r 2 5r 6 1r 4 28r 6 2r 1 2r 6 10r 2 27r 6 162r 2 7r 3 2 3r 6 2r 4 32r 6 1r 1 2r 6 5r 5 4r 6 4r 2 24r 6 159r 2 7r 3 2 1r 6 2r 4 35r 6 1r 1 2r 6 3r 5 10r 6 9r 2 16r 6 156r 2 11r 6 4 38r 6 1 3r 6 2r 5 21r 6 3r 2 14r 6 153r 2 10r 6 4 39r 6 1 4r 6 2r 5 24r 6 2r 2 13r 6 150r 2 11r 6 4 40r 1 5r 6 2r 5 27r 6 1r 2 13r 6 146r 2 12r 4 41r 1 6r 6 1r 5 29r 6 1r 2 13r 6 144r 2 12r 4 42r 1 6r 6 1r 5 30r 6 1r 2 13r 6 141r 2 13r 6 4 40r 6 1 7r 6 2r 5 30r 6 2r 2 13r 6 138r 2 13r 4 41r 6 1 9r 6 1r 5 31r 6 2r 2 13r 6 136r 2 13r 4 41r 6 1 10r 6 2r 5 32r 6 1r 2 13r 6 133r 2 14r 6 4 40r 6 1 12r 6 1r 5 33r 6 2 14r 6 131r 2 14r 6 4 40r 6 1 14r 6 1r 5 32r 6 1r 2 15r 6 128r 2 15r 4 41r 6 1 15r 6 5 33r 6 1r 2 15r 6 126r 2 14r 6 4 40r 6 1r 1 16r 6 1r 5 33r 6 1r 2 15r 6 124r 2 15r 4 40r 6 1r 1 18r 6 1r 5 33r 6 2 16r 6 122r 2 15r 6 4 40r 6 1 19r 6 1r 5 33r 6 1r 2 17r 6 119r 2 13r 3 2 6 4 40r 6 1 21r 6 1r 5 34r 6 2 17r 6 117r 2 13r 3 2 1r 4 40r 6 1 23r 6 1r 5 33r 6 1r 2 17r 6 115r 2 13r 3 1r 2 4 40r 6 1r 1 24r 6 5 34r 6 2 18r 6 113r 2 14r 3 1r 2 4 40r 6 1 26r 6 5 34r 6 2 19r 6 112r 2 12r 3 1r 2 4 40r 6 1 28r 5 34r 6 2 20r 6 109r 1 2r 6 2r 2 7r 3 2 6 4 38r 6 1 30r 6 5 34r 6 2 21r 6 106r 1 7r 6 3r 2 2r 3 1r 2 6 4 37r 6 1 31r 6 1r 5 34r 6 2 21r 6 104r 1 11r 6 3r 2 1r 6 1r 4 35r 6 1 34r 6 5 34r 6 2 21r 6 103r 1 14r 6 4r 4 35r 6 1 35r 6 5 35r 6 2 21r 6 102r 1 16r 3 1 6 4 34r 6 1 37r 6 5 34r 6 2 19r 6 102r 1 18r 3 1 6 4 34r 6 1 37r 6 5 35r 2 16r 6 3r 1 2r 6 97r 1 19r 3 1 6 4 34r 1 38r 6 5 35r 6 2 12r 6 3r 1 5r 6 96r 1 20r 3 1 6 4 34r 1 39r 6 5 34r 6 2 10r 6 3r 1 8r 6 93r 1 22r 3 1 4 35r 6 1 39r 5 35r 6 2 7r 6 2r 1 12r 6 85r 1 6 1 27r 3 1 4 35r 6 1 39r 6 5 34r 6 2 5r 6 1r 1 15r 6 83r 1 31r 3 1 4 36r 6 1 38r 6 5 35r 6 1r 2 1r 1 19r 6 81r 1 33r 3 1 4 36r 6 1 6r 6 1r 1 2r 6 2r 1 23r 6 5 35r 6 1 23r 6 78r 1 35r 3 1 4 37r 6 1 7r 6 6r 1 23r 5 35r 6 1 23r 6 76r 1 39r 4 38r 6 1 7r 6 6r 1 22r 5 35r 6 1 24r 6 74r 1 40r 4 39r 6 1 7r 6 7r 1 3r 6 2r 1 13r 5 35r 6 1 24r 6 74r 1 39r 6 4 40r 6 1 7r 6 2r 1 2r 6 8r 1 12r 5 35r 6 1 24r 6 73r 1 40r 6 4 40r 6 1r 1 15r 6 6r 1 11r 5 35r 6 1 24r 6 72r 1 41r 6 4 40r 6 1r 1 16r 6 5r 1 10r 6 5 35r 6 1 25r 6 70r 1 43r 4 41r 6 1r 1 16r 6 4r 1 6 3r 1 5r 6 5 35r 6 1 3 1r 1 22r 6 70r 1 43r 4 41r 6 1r 1 17r 6 1r 1 5r 6 6r 5 36r 6 1 3 1r 1 22r 6 69r 1 44r 4 42r 6 1 29r 6 1r 5 37r 6 1 3 1 23r 6 67r 1 45r 4 42r 6 1r 1 28r 6 5 37r 6 1 3 2r 1 23r 6 67r 1 45r 4 43r 6 1 27r 6 5 38r 6 1 3 2r 1 23r 6 67r 1 45r 4 43r 6 1r 1 25r 6 5 39r 6 1 3 2r 1 23r 6 67r 1 45r 4 44r 6 1 24r 5 41r 6 1 3 1r 1 24r 6 67r 1 45r 4 44r 6 1 22r 5 43r 6 1 3 1r 1 25r 6 65r 1 46r 4 43r 6 1r 1 19r 5 46r 6 1 3 1r 1 25r 6 65r 1 46r 4 43r 6 1r 1 19r 5 46r 6 1r 1 3 1 26r 6 66r 1 45r 6 4 42r 6 1 18r 5 47r 6 1 1r 3 1 26r 6 66r 1 45r 6 4 43r 6 11r 1 5r 6 5 47r 6 1 29r 6 66r 1 46r 4 43r 6 1r 1 5r 6 5r 1 2r 6 5 48r 6 1 29r 6 67r 1 45r 4 42r 6 1r 1 11r 6 1r 1 1r 5 49r 6 1 29r 6 69r 1 43r 4 42r 6 1 14r 6 5 49r 6 1r 1 30r 6 69r 1 42r 6 4 41r 6 1 14r 6 5 49r 6 1 31r 6 69r 1 42r 6 4 40r 6 1 15r 6 5 49r 6 1 31r 6 70r 1 42r 4 40r 6 1 16r 5 49r 6 1 31r 6 70r 1 42r 6 4 39r 6 1 16r 5 48r 6 1r 1 32r 6 70r 1 41r 6 4 39r 6 1 16r 5 48r 6 1 33r 6 70r 1 42r 4 39r 6 1 7r 3 1r 1 6r 6 5 47r 6 1 33r 6 70r 1 42r 6 4 37r 6 1 6r 3 5r 1 4r 6 5 46r 6 1r 1 33r 6 70r 1 43r 4 37r 6 1 4r 3 7r 1 4r 6 5 46r 6 1 34r 6 71r 1 42r 6 4 36r 6 1 3r 3 9r 1 3r 6 5 45r 6 1r 1 35r 6 70r 1 43r 4 36r 6 1 2r 3 10r 1 3r 6 5 44r 6 1 36r 6 36r 6 70r 1 43r 6 4 35r 6 1 2r 3 11r 1 3r 6 5 44r 6 1 36r 6 70r 1 44r 4 35r 1 2r 3 13r 1 2r 6 5 43r 6 1 37r 6 71r 1 39r 3 2r 1 4 34r 6 1 1r 3 14r 1 2r 6 5 42r 6 1r 1 37r 6 71r 1 39r 3 2r 1 6 4 33r 6 1 1r 3 15r 1 2r 6 5 41r 6 1 39r 6 70r 1 40r 3 2r 1 4 32r 6 1 2r 3 15r 1 1r 6 1r 5 40r 6 1r 1 1r 3 1r 1 35r 6 70r 1 41r 3 1r 1 6 4 31r 6 1 2r 3 16r 6 2r 5 40r 6 1 1r 3 2r 1 35r 6 70r 1 45r 4 30r 6 1 3r 3 16r 1 1r 6 5 39r 6 1 1r 3 2r 1 36r 6 70r 1 45r 6 4 28r 6 1 3r 3 18r 1 6 5 38r 6 1r 1 3 3r 1 36r 6 71r 1 45r 6 4 26r 6 1r 1 2r 3 19r 1 1r 5 38r 6 1 3 3r 1 37r 6 71r 1 46r 6 4 24r 6 1r 1 2r 3 20r 1 1r 5 37r 6 1 1r 3 3r 1 38r 6 70r 1 46r 6 1r 4 22r 6 1r 1 3r 3 21r 1 6 5 35r 6 1r 1 1r 3 2r 1 39r 6 70r 1 47r 6 1r 4 20r 6 1r 1 3r 3 22r 1 6 5 34r 6 1r 1 1r 3 2r 1 40r 6 70r 1 48r 6 1r 4 18r 6 2r 1 2r 3 23r 1 6 1r 5 32r 6 1r 1 2r 3 1r 1 41r 6 70r 1 45r 3 2r 1 1r 6 1r 4 15r 6 2r 1 3r 3 24r 1 6 1r 5 30r 6 1r 1 3r 3 1 41r 6 71r 1 45r 3 3r 1 1r 6 3r 4 10r 6 2r 1 4r 3 25r 1 6 2r 5 28r 6 1r 1 47r 6 71r 1 46r 3 3r 1 3r 6 3r 4 2r 6 6r 1 5r 3 25r 1 1r 6 2r 5 26r 6 2r 1 47r 6 71r 1 48r 3 1r 1 6r 6 8r 1 7r 3 25r 1 1r 6 3r 5 24r 6 2r 1 48r 6 72r 1 72r 3 27r 1 2r 6 2r 5 22r 6 1r 1 49r 6 73r 1 72r 3 28r 1 2r 6 3r 5 18r 6 2r 1 50r 6 73r 1 72r 3 28r 1 3r 6 3r 5 15r 6 3r 1 51r 6 73r 1 73r 3 27r 1 5r 6 4r 5 10r 6 3r 1 52r 6 75r 1 72r 3 27r 1 6r 6 6r 5 5r 6 3r 1 53r 6 76r 1 73r 3 26r 1 9r 6 11r 1 55r 6 77r 1 73r 3 25r 1 13r 6 3r 1 58r 6 79r 1 73r 3 24r 1 75r 6 80r 1 76r 3 19r 1 76r 6 82r 1 77r 3 15r 1 77r 6 85r 1 81r 3 7r 1 77r 6 88r 1 164r 6 92r 1 160r 6 96r 1 156r 6 101r 1 151r 6 106r 1 145r 6 113r 1 138r 6 120r 1 62r 6 1r 1 66r 6 128r 1 52r 6 10r 1 59r 6 136r 1 42r 6 18r 1 51r 6 148r 1 30r 6 27r 1 42r 6 160r 1 14r 6 41r 1 32r 6 234r 1 10r 6 35533r 2 5r 6 241r 2 21r 6 228r 2 34r 6 217r 2 24r 3 4r 2 15r 6 206r 2 27r 3 8r 2 20r 6 195r 2 30r 3 11r 2 23r 6 186r 2 35r 3 10r 2 24r 6 181r 2 40r 3 8r 2 26r 6 176r 2 20r 6 6r 4 6 7r 2 9r 3 2 1r 3 1r 2 28r 6 172r 2 16r 6 4r 4 16r 6 8r 2 1r 6 2 33r 6 168r 2 15r 6 5r 4 21r 6 3r 1 6 7r 2 31r 6 164r 2 14r 6 2r 4 28r 6 2r 1 2r 6 11r 2 26r 6 162r 2 11r 6 3r 4 32r 6 1 2r 6 4r 5 2r 6 11r 2 21r 6 158r 2 11r 6 1r 4 37r 1 2r 6 3r 5 17r 6 4r 2 16r 6 154r 2 12r 6 4 39r 1 2r 6 2r 5 23r 6 2r 2 14r 6 152r 2 12r 6 4 39r 1 3r 6 2r 5 26r 6 1r 2 13r 6 149r 2 12r 6 4 40r 1 4r 6 2r 5 28r 6 1r 2 13r 6 146r 2 12r 6 4 40r 6 1 4r 6 2r 5 29r 6 1r 2 13r 6 143r 2 13r 6 4 40r 6 1 6r 6 1r 5 30r 6 1r 2 14r 6 140r 2 12r 6 4 41r 6 1 7r 6 1r 5 31r 6 2r 2 13r 6 137r 2 13r 6 4 41r 6 1 8r 6 2r 5 32r 6 2r 2 12r 6 135r 2 14r 4 40r 6 2r 1 9r 6 1r 5 33r 6 1r 2 14r 6 132r 2 14r 4 41r 6 1r 1 10r 6 2r 5 33r 6 1r 2 14r 6 129r 2 15r 6 4 40r 6 1r 1 12r 6 2r 5 32r 6 1r 2 15r 6 127r 2 14r 6 1r 4 40r 6 1r 1 14r 6 1r 5 33r 6 1r 2 15r 6 125r 2 15r 6 4 40r 6 1r 1 15r 6 2r 5 32r 6 2r 2 16r 6 122r 2 16r 4 40r 6 1r 1 17r 6 1r 5 33r 6 2r 2 16r 6 120r 2 16r 6 4 40r 6 1 19r 6 5 34r 6 1r 2 3 2 15r 6 118r 2 16r 6 4 40r 6 1 20r 6 1r 5 34r 6 1r 2 3 2 16r 6 115r 2 14r 3 2 1r 4 40r 6 1 22r 6 1r 5 33r 6 1r 2 3 1r 2 16r 6 114r 2 13r 3 1r 2 4 40r 6 1 24r 6 1r 5 33r 6 1r 2 3 2 17r 6 111r 1 6 3r 2 8r 3 1r 2 4 40r 1 26r 6 5 34r 6 1r 2 3 2 17r 6 111r 1 6 3r 2 8r 3 1r 2 6 4 39r 1 27r 6 5 34r 6 1r 2 3 2 18r 6 109r 1 4r 6 3r 2 5r 3 1r 2 6 4 38r 1 29r 6 5 34r 6 1r 2 3 2 18r 6 107r 1 7r 6 3r 2 3r 3 2 6 4 38r 1 30r 6 5 35r 6 2 3 2 19r 6 105r 1 12r 6 2r 2 1r 6 1r 4 36r 6 1 32r 6 5 34r 6 2 1r 3 2 20r 6 102r 1 18r 6 1r 4 35r 6 1 33r 6 5 35r 6 2 3 2 20r 6 101r 1 17r 3 1r 1 6 4 34r 6 1 34r 6 5 35r 6 2 3 2 17r 6 103r 1 18r 3 1r 1 6 4 33r 6 1 36r 6 5 35r 6 2 3 2 12r 6 5r 1 1r 6 97r 1 20r 3 1r 1 6 4 33r 6 1 36r 6 5 35r 6 2 12r 6 4r 1 5r 6 94r 1 22r 3 1r 1 4 34r 6 1 37r 6 5 35r 6 2 9r 6 3r 1 9r 6 89r 1 25r 3 1r 1 6 4 34r 6 1 37r 6 5 35r 6 2 6r 6 3r 1 13r 6 85r 1 28r 3 1r 1 6 4 34r 6 1 38r 6 5 35r 6 2 3r 6 2r 1 16r 6 81r 1 32r 3 1r 1 6 4 34r 6 1 38r 6 5 35r 6 2 6 1r 1 21r 6 78r 1 34r 3 1r 1 4 36r 6 1 7r 6 1r 1 1r 6 3r 1 22r 5 36r 6 1 24r 6 74r 1 38r 3 1r 1 4 37r 6 1 9r 6 5r 1 21r 6 5 34r 6 1 25r 6 72r 1 39r 3 1r 1 4 37r 6 1r 1 8r 6 8r 1 1r 6 3r 1 12r 6 5 34r 6 1r 1 24r 6 71r 1 40r 3 1r 1 4 38r 6 1r 1 8r 6 1r 1 4r 6 7r 1 11r 6 5 34r 6 1r 1 24r 6 71r 1 40r 3 1r 1 4 39r 6 1 17r 6 6r 1 10r 6 5 34r 6 1 26r 6 69r 1 42r 3 1 4 39r 6 1r 1 17r 6 7r 1 8r 6 5 34r 6 1 26r 6 69r 1 42r 3 1 4 40r 6 1 18r 6 3r 1 1r 6 3r 1 5r 5 35r 6 1 26r 6 69r 1 42r 3 1 4 40r 6 1 28r 6 3r 5 37r 6 1 26r 6 68r 1 43r 3 1 4 41r 6 1 30r 6 5 37r 6 1 27r 6 67r 1 45r 4 41r 6 1 30r 6 5 37r 6 1 27r 6 67r 1 45r 4 41r 6 1 30r 5 38r 6 1 1r 3 1 24r 6 66r 1 46r 4 42r 6

1 28r 5 39r 6 1 3 1r 1 24r 6 66r 1 46r 4 42r 6 1 27r 6 5 39r 6 1 3 1r 1 24r 6 66r 1 46r 6 4 42r 6 1 25r 6 5 40r 6 1 3 1r 1 25r 6 65r 1 46r 6 4 42r 6 1 24r 5 41r 6 1r 1 3 1r 1 25r 6 64r 1 47r 6 4 42r 6 1 22r 6 5 42r 6 1 3 2r 1 25r 6 64r 1 47r 6 4 42r 6 1 20r 6 5 44r 6 1 3 2r 1 25r 6 64r 1 47r 6 4 42r 6 1 19r 5 46r 6 1 3 1r 1 26r 6 64r 1 48r 4 42r 6 8r 1 10r 5 47r 6 1 3 1r 1 27r 6 63r 1 48r 4 42r 6 13r 1 4r 6 5 47r 6 1 3 1r 1 27r 6 62r 1 49r 4 42r 6 1r 1 9r 6 3r 1 1r 6 5 47r 6 1 1r 3 1r 1 27r 6 62r 1 49r 6 4 41r 6 1r 1 12r 6 1 1r 5 48r 6 1 1r 3 1 28r 6 62r 1 49r 6 4 41r 6 1 14r 6 5 49r 6 1 1r 3 1 28r 6 63r 1 49r 4 40r 6 1r 1 14r 6 5 49r 6 1 3 1r 1 28r 6 63r 1 49r 4 40r 6 1 15r 6 5 48r 6 1r 1 31r 6 64r 1 48r 6 4 39r 6 1 16r 5 48r 6 1 33r 6 65r 1 47r 4 39r 6 1 16r 5 48r 6 1 33r 6 66r 1 46r 4 39r 6 1 16r 5 48r 6 1 33r 6 66r 1 46r 6 4 38r 1 7r 3 3r 1 5r 5 47r 6 1 34r 6 68r 1 45r 4 38r 1 5r 3 6r 1 4r 6 5 46r 6 1 35r 6 67r 1 45r 6 4 36r 6 1 4r 3 8r 1 3r 6 5 45r 6 1r 1 35r 6 67r 1 46r 4 36r 6 1 3r 3 9r 1 3r 6 5 45r 6 1 36r 6 68r 1 45r 6 4 35r 6 1 2r 3 11r 1 3r 5 44r 6 1r 1 36r 6 69r 1 45r 4 35r 6 1 1r 3 12r 1 3r 5 44r 6 1 37r 6 69r 1 45r 6 4 33r 6 1 2r 3 13r 1 2r 6 5 42r 6 1r 1 38r 6 69r 1 41r 3 1r 1 6 4 33r 6 1 1r 3 15r 1 1r 6 5 42r 6 1 39r 6 69r 1 41r 3 2r 1 6 4 31r 6 1 2r 3 15r 1 1r 6 5 41r 6 1r 1 39r 6 69r 1 41r 3 2r 1 6 4 31r 6 1 2r 3 15r 1 1r 6 5 41r 6 1 40r 6 69r 1 42r 3 2r 1 4 30r 6 1 3r 3 16r 1 6 1r 5 39r 6 1r 1 40r 6 70r 1 42r 3 1r 1 6 4 28r 6 1r 1 3r 3 16r 1 1r 6 5 38r 6 1r 1 2r 3 1 38r 6 69r 1 46r 6 4 27r 6 1 4r 3 15r 1 2r 6 5 38r 6 1 2r 3 1r 1 38r 6 69r 1 47r 6 4 25r 6 1 4r 3 16r 1 2r 6 5 37r 6 1r 1 3 2r 1 39r 6 69r 1 47r 6 1r 4 22r 6 2r 1 2r 3 19r 1 1r 6 5 36r 6 1r 1 3 3r 1 39r 6 69r 1 48r 6 1r 4 20r 6 2r 1 3r 3 19r 1 2r 5 35r 6 1r 1 1r 3 2r 1 40r 6 69r 1 49r 6 1r 4 17r 6 3r 1 3r 3 21r 1 1r 6 5 33r 6 1r 1 1r 3 3r 1 40r 6 69r 1 50r 6 1r 4 15r 6 3r 1 3r 3 22r 1 1r 6 1r 5 31r 6 1r 1 2r 3 2r 1 41r 6 70r 1 51r 6 1r 4 9r 6 6r 1 4r 3 23r 1 1r 6 5 30r 6 1r 1 2r 3 2r 1 42r 6 70r 1 46r 3 3r 1 1r 6 3r 4 2r 6 9r 1 4r 3 25r 1 1r 6 5 28r 6 1r 1 3r 3 1r 1 43r 6 70r 1 47r 3 2r 1 4r 6 11r 1 6r 3 25r 1 1r 6 1r 5 26r 6 2r 1 48r 6 71r 1 48r 3 1r 1 9r 6 4r 1 7r 3 27r 1 6 3r 5 23r 6 2r 1 49r 6 71r 1 50r 3 1r 1 20r 3 27r 1 2r 6 2r 5 20r 6 2r 1 51r 6 71r 1 51r 3 1 20r 3 28r 1 3r 6 2r 5 17r 6 2r 1 51r 6 73r 1 72r 3 28r 1 4r 6 2r 5 14r 6 3r 1 52r 6 73r 1 73r 3 27r 1 6r 6 2r 5 10r 6 3r 1 53r 6 74r 1 73r 3 27r 1 8r 6 13r 1 55r 6 75r 1 73r 3 26r 1 11r 6 7r 1 57r 6 77r 1 73r 3 25r 1 76r 6 78r 1 75r 3 22r 1 76r 6 80r 1 76r 3 19r 1 76r 6 82r 1 78r 3 14r 1 77r 6 84r 1 84r 3 4r 1 78r 6 88r 1 164r 6 92r 1 160r 6 96r 1 156r 6 101r 1 151r 6 106r 1 145r 6 113r 1 138r 6 120r 1 61r 6 2r 1 66r 6 128r 1 51r 6 11r 1 59r 6 137r 1 40r 6 19r 1 51r 6 148r 1 30r 6 27r 1 42r 6 163r 1 10r 6 42r 1 31r 6 237r 1 7r 6 35786r 2 13r 6 235r 2 26r 6 224r 2 23r 3 1r 2 12r 6 213r 2 25r 3 7r 2 16r 6 201r 2 29r 3 10r 2 19r 6 192r 2 32r 3 11r 2 23r 6 184r 2 37r 3 9r 2 25r 6 179r 2 23r 6 6r 2 11r 3 7r 2 26r 6 175r 2 20r 6 4r 4 6r 6 8r 2 8r 3 1r 2 28r 6 171r 2 19r 6 2r 4 18r 6 7r 2 35r 6 167r 2 15r 6 5r 4 22r 6 3r 1 1r 6 7r 2 30r 6 163r 2 13r 6 3r 4 29r 6 2r 1 1r 6 11r 2 28r 6 160r 2 12r 6 4 34r 6 1r 1 2r 6 4r 5 6r 6 11r 2 17r 6 157r 2 12r 6 1r 4 35r 6 1r 1 2r 6 2r 5 21r 6 2r 2 15r 6 154r 2 12r 6 4 37r 6 1 2r 6 2r 5 25r 6 2r 2 13r 6 151r 2 13r 6 4 38r 6 1 2r 6 2r 5 27r 6 2r 2 13r 6 147r 2 13r 6 1r 4 38r 6 1 3r 6 2r 5 29r 6 1r 2 13r 6 145r 2 13r 6 4 39r 6 1 4r 6 2r 5 30r 6 1r 2 14r 6 141r 2 14r 6 4 39r 6 1 6r 6 1r 5 32r 6 2 14r 6 139r 2 13r 6 4 40r 6 1 7r 6 1r 5 33r 6 2 14r 6 137r 2 13r 6 4 40r 6 1r 1 8r 6 1r 5 32r 6 2r 2 14r 6 133r 2 15r 4 40r 6 1r 1 9r 6 1r 5 33r 6 2r 2 14r 6 131r 2 15r 6 4 40r 6 1 11r 6 1r 5 33r 6 1r 2 15r 6 129r 2 15r 6 4 40r 6 1 12r 6 2r 5 33r 6 1r 2 15r 6 127r 2 15r 6 4 40r 6 1r 1 13r 6 2r 5 33r 6 1r 2 16r 6 124r 2 16r 4 40r 6 1r 1 15r 6 2r 5 33r 6 1r 2 16r 6 121r 2 17r 6 4 39r 6 1r 1 17r 6 1r 5 33r 6 1r 2 18r 6 118r 2 17r 6 4 40r 6 1r 1 17r 6 1r 5 34r 6 1r 2 18r 6 116r 2 17r 6 4 40r 6 1 20r 6 5 35r 6 1r 2 3 2 16r 6 115r 2 16r 6 4 40r 6 1 22r 6 5 35r 6 2 3 1r 2 17r 6 115r 2 14r 4 40r 6 1 23r 6 1r 5 35r 6 2 3 2 18r 6 110r 1 2r 6 3r 2 10r 6 4 39r 6 1 25r 6 5 35r 6 2 3 1r 2 18r 6 108r 1 6r 6 2r 2 8r 6 4 38r 6 1 27r 5 36r 6 2 3 2 19r 6 106r 1 9r 6 3r 2 5r 6 4 37r 6 1 28r 6 5 35r 6 2 3 1r 2 19r 6 104r 1 14r 6 2r 2 1r 6 4 37r 6 1 29r 6 5 36r 6 2 3 2 20r 6 102r 1 19r 6 1r 4 36r 6 1r 1 30r 6 5 35r 6 2 3 1r 2 19r 6 101r 1 18r 3 1r 1 6 4 34r 6 1r 1 32r 6 5 35r 6 1r 3 1r 2 17r 6 101r 1 20r 3 1r 1 6 4 33r 6 1r 1 33r 6 5 36r 6 2 3 1r 2 14r 6 3r 1 2r 6 90r 1 26r 3 1r 1 6 4 33r 6 1 35r 6 5 35r 6 2 3 1r 2 11r 6 3r 1 5r 6 86r 1 30r 3 1r 1 4 34r 6 1 35r 6 1r 5 34r 6 1r 2 3 2 9r 6 3r 1 8r 6 81r 1 34r 3 1r 1 4 34r 6 1 36r 6 5 35r 6 2 8r 6 2r 1 13r 6 78r 1 36r 3 1r 1 4 34r 6 1 37r 6 5 35r 6 2 4r 6 1r 1 17r 6 76r 1 38r 3 1r 6 4 34r 6 1 37r 6 5 36r 2 6 2r 1 21r 6 74r 1 38r 3 1r 1 6 4 35r 1 38r 6 5 35r 6 1 24r 6 73r 1 39r 3 1r 1 6 4 35r 6 1 37r 6 5 35r 6 1 25r 6 71r 1 40r 3 1r 1 6 4 35r 6 1 37r 6 5 35r 6 1 25r 6 70r 1 41r 3 1r 1 6 4 36r 6 1 37r 5 35r 6 1 25r 6 70r 1 41r 3 1r 1 6 4 36r 6 1 37r 6 5 35r 6 1 26r 6 68r 1 42r 3 1r 1 6 4 36r 6 1r 1 36r 5 35r 6 1 26r 6 68r 1 42r 3 1r 1 6 4 37r 6 1 36r 5 35r 6 1 26r 6 68r 1 42r 3 1r 1 6 4 38r 6 1 35r 5 35r 6 1 26r 6 67r 1 44r 3 1 6 4 38r 6 1r 1 31r 6 1r 5 36r 6 1 27r 6 66r 1 44r 3 1 6 4 39r 6 1 32r 6 5 36r 6 1 27r 6 66r 1 44r 3 1 6 4 39r 6 1 31r 6 1r 5 36r 6 1 27r 6 65r 1 45r 3 1 6 4 40r 6 1 4 40r 6 1 30r 6 5 36r 6 1r 1 27r 6 65r 1 45r 3 1 6 4 40r 6 1 29r 6 5 37r 6 1r 1 28r 6 64r 1 45r 3 1 1r 4 40r 6 1 28r 6 5 38r 6 1 29r 6 63r 1 47r 3 1 4 41r 6 1 26r 5 40r 6 1 1r 3 1 26r 6 63r 1 47r 3 1 4 42r 6 1 23r 6 5 41r 6 1 3 1r 1 27r 6 62r 1 49r 4 42r 6 1 21r 6 5 43r 6 1 3 1r 1 27r 6 61r 1 50r 4 42r 6 1 19r 6 5 45r 6 1 3 1r 1 27r 6 61r 1 50r 6 4 41r 6 11r 1 7r 5 46r 6 1 1r 3 1r 1 27r 6 61r 1 50r 6 4 41r 6 2r 1 4r 6 6r 1 3r 6 5 46r 6 1 3 2r 1 27r 6 61r 1 51r 4 41r 6 1r 1 11r 6 1r 1 1r 6 5 47r 6 1 3 2r 1 27r 6 60r 1 52r 4 41r 6 1 13r 6 1r 1 5 48r 6 1 3 1r 1 28r 6 60r 1 52r 6 4 39r 6 1 15r 6 1r 5 47r 6 1 3 2r 1 29r 6 59r 1 52r 6 4 39r 6 1 15r 6 5 48r 6 1 3 2r 1 29r 6 59r 1 53r 4 39r 6 1 15r 6 5 48r 6 1 3 1r 1 30r 6 60r 1 52r 6 4 38r 6 1 16r 5 47r 6 1r 1 3 1r 1 30r 6 60r 1 52r 6 4 38r 1 8r 3 1r 2 28r 6 1 32r 6 60r 1 52r 4 37r 6 1 6r 3 4r 1 5r 5 47r 6 1 35r 6 61r 1 51r 6 4 36r 6 1 4r 3 7r 1 4r 6 5 45r 6 1r 1 35r 6 62r 1 51r 4 36r 6 1 3r 3 9r 1 3r 6 5 45r 6 1 36r 6 63r 1 50r 6 4 35r 6 1 3r 3 9r 1 3r 6 5 44r 6 1r 1 36r 6 64r 1 50r 4 35r 6 1 2r 3 11r 1 3r 6 5 43r 6 1 38r 6 64r 1 49r 6 4 33r 6 1 2r 3 13r 1 2r 6 5 42r 6 1r 1 38r 6 65r 1 49r 4 33r 6 1 1r 3 14r 1 2r 6 5 42r 6 1 39r 6 66r 1 48r 6 4 32r 6 1 1r 3 15r 1 1r 6 5 41r 6 1r 1 39r 6 67r 1 44r 3 1r 1 1r 4 31r 6 1 2r 3 15r 1 1r 6 5 40r 6 1r 1 41r 6 66r 1 44r 3 2r 1 6 4 29r 6 1 3r 3 16r 1 6 1r 5 39r 6 1 42r 6 67r 1 44r 3 1r 1 1r 4 29r 6 1 3 1 1r 3 16r 1 1r 6 5 38r 6 1r 1 42r 6 67r 1 44r 3 2r 1 6 4 27r 6 1 1r 3 1 2r 3 14r 1 2r 6 1r 5 37r 6 1 43r 6 68r 1 45r 3 1 1r 6 4 25r 6 1 2r 3 1 1r 3 15r 1 2r 6 1r 5 36r 6 1r 1 43r 6 68r 1 46r 3 1 1r 6 4 23r 6 1r 1 1r 3 69r 1 51r 6 2r 4 12r 6 3r 1 4r 3 22r 1 1r 6 2r 5 30r 6 1 1r 3 3r 1 42r 6 69r 1 53r 6 2r 4 6r 6 6r 1 5r 3 22r 1 2r 6 1r 5 28r 6 1r 1 1r 3 3r 1 43r 6 69r 1 55r 6 13r 1 5r 3 24r 1 2r 6 1r 5 26r 6 1 2r 3 1r 1 44r 6 69r 1 49r 3 3r 1 4r 6 7r 1 7r 3 25r 1 3r 6 1r 5 24r 6 1r 1 2r 3 2r 1 45r 6 69r 1 50r 3 1r 1 21r 3 26r 1 3r 6 2r 5 20r 6 2r 1 3r 3 1r 1 45r 6 71r 1 73r 3 27r 1 3r 6 2r 5 18r 6 2r 1 3r 3 1r 1 46r 6 71r 1 52r 3 1r 1 18r 3 27r 1 4r 6 3r 5 14r 6 3r 1 53r 6 71r 1 73r 3 28r 1 5r 6 3r 5 10r 6 3r 1 54r 6 73r 1 73r 3 27r 1 7r 6 6r 5 6 6r 1 56r 6 73r 1 74r 3 26r 1 9r 6 10r 1 57r 6 75r 1 74r 3 25r 1 77r 6 76r 1 75r 3 23r 1 77r 6 78r 1 76r 3 20r 1 78r 6 79r 1 77r 3 17r 1 78r 6 81r 1 81r 3 9r 1 79r 6 84r 1 168r 6 88r 1 164r 6 92r 1 160r 6 96r 1 156r 6 101r 1 150r 6 107r 1 145r 6 113r 1 138r 6 121r 1 59r 6 4r 1 65r 6 129r 1 49r 6 12r 1 59r 6 138r 1 38r 6 21r 1 49r 6 150r 1 28r 6 29r 1 40r 6 169r 1 2r 6 46r 1 29r 6 36286r 2 19r 6 231r 2 30r 6 220r 2 23r 3 5r 2 12r 6 209r 2 26r 3 9r 2 17r 6 198r 2 29r 3 11r 2 21r 6 188r 2 34r 3 11r 2 23r 6 182r 2 38r 3 10r 2 25r 6 177r 2 23r 6 12r 2 7r 3 6r 2 27r 6 173r 2 20r 6 3r 4 14r 6 4r 2 4r 3 2r 2 30r 6 170r 2 18r 6 3r 4 18r 6 8r 2 2r 6 1r 2 30r 6 166r 2 14r 6 6r 4 22r 6 2r 1 1r 6 8r 2 31r 6 162r 2 13r 6 4r 4 28r 6 1r 1 2r 6 3r 5 6 7r 2 27r 6 159r 2 14r 6 1r 4 32r 6 1r 1 1r 6 2r 5 11r 6 1r 5 3r 6 5r 2 16r 6 156r 2 13r 6 4 35r 6 1 2r 6 2r 5 23r 6 3r 2 13r 6 153r 2 14r 6 4 36r 1 3r 6 2r 5 26r 6 2r 2 13r 6 149r 2 14r 6 4 38r 1 3r 6 2r 5 29r 6 2 13r 6 147r 2 14r 6 4 37r 6 1 4r 6 2r 5 30r 6 1r 2 13r 6 143r 2 14r 6 4 38r 6 1r 1 4r 6 2r 5 31r 6 1r 2 13r 6 141r 2 14r 6 4 38r 6 1r 1 6r 6 1r 5 32r 6 1r 2 14r 6 138r 2 14r 6 4 38r 6 1r 1 7r 6 1r 5 33r 6 1r 2 14r 6 135r 2 15r 6 4 38r 6 1r 1 8r 6 2r 5 33r 6 2 15r 6 133r 2 15r 6 4 39r 6 1r 1 9r 6 1r 5 34r 6 2 15r 6 131r 2 16r 4 39r 6 1r 1 10r 6 1r 5 35r 6 2 16r 6 127r 2 17r 6 4 38r 6 1r 1 11r 6 2r 5 35r 6 2 16r 6 125r 2 17r 6 4 39r 6 1 13r 6 1r 5 36r 6 2 17r 6 122r 2 17r 6 4 39r 6 1r 1 14r 6 1r 5 35r 6 1r 2 17r 6 119r 2 18r 6 4 39r 6 1r 1 16r 6 1r 5 35r 6 2 19r 6 116r 2 18r 6 4 40r 6 1 17r 6 2r 5 35r 6 2 19r 6 116r 2 16r 6 4 40r 6 1 19r 6 1r 5 35r 6 1r 2 19r 6 113r 1 6 2r 2 14r 4 40r 6 1 21r 6 5 36r 6 2 1r 3 2 18r 6 110r 1 4r 6 1r 2 11r 6 4 39r 6 1 23r 6 5 36r 6 2 1r 3 2 18r 6 108r 1 7r 6 3r 2 7r 4 39r 6 1 24r 6 5 36r 6 1r 2 3 2 19r 6 105r 1 12r 6 2r 2 4r 6 4 38r 6 1 26r 5 37r 6 2 3 2 20r 6 103r 1 18r 6 2 6 1r 4 37r 6 1 27r 6 5 36r 6 2 3 1r 2 20r 6 99r 1 23r 6 1r 4 36r 6 1 28r 6 5 37r 6 3 1r 2 20r 6 89r 1 33r 6 4 35r 6 1r 1 30r 6 5 36r 6 2 3 1r 2 17r 6 88r 1 36r 6 4 34r 6 1r 1 31r 6 5 37r 2 3 1r 2 14r 6 4r 1 2r 6 80r 1 39r 6 4 34r 6 1 32r 6 1r 5 36r 6 2 3 2 12r 6 3r 1 5r 6 79r 1 40r 4 35r 6 1 33r 6 5 36r 6 2 3 1r 2 8r 6 4r 1 8r 6 76r 1 42r 4 34r 6 1 35r 6 5 36r 6 2 3 2 5r 6 4r 1 12r 6 74r 1 43r 4 34r 6 1 36r 6 5 35r 6 1r 3 2 6 5r 1 17r 6 72r 1 44r 4 34r 6 1 36r 6 5 36r 6 5r 1 20r 6 71r 1 42r 3 1 1r 4 34r 6 1 37r 6 5 35r 6 1r 1 25r 6 70r 1 42r 3 1 1r 4 35r 6 1 36r 6 5 35r 6 1 26r 6 69r 1 43r 3 1 1r 4 35r 6 1 37r 5 35r 6 1 26r 6 69r 1 43r 3 1 6 4 36r 1 37r 6 5 34r 6 1 27r 6 68r 1 43r 3 1 1r 4 36r 6 1 36r 6 5 34r 6 1 27r 6 67r 1 44r 3 1 1r 4 36r 6 1 36r 6 5 34r 6 1 27r 6 67r 1 44r 3 1 1r 4 36r 6 1 37r 5 34r 6 1 28r 6 66r 1 44r 3 1 1r 4 37r 6 1 35r 6 5 34r 6 1 28r 6 65r 1 45r 3 1r 1 4 38r 6 1 33r 6 5 35r 6 1 28r 6 65r 1 45r 3 1r 1 4 38r 6 1 33r 5 36r 6 1 28r 6 65r 1 45r 3 1r 1 4 39r 1 32r 6 5 36r 6 1 29r 6 63r 1 46r 3 1r 1 4 39r 6 1 31r 5 37r 6 1 29r 6 63r 1 46r 3 1r 1 4 40r 1 30r 6 5 37r 6 1 29r 6 63r 1 46r 3 1r 1 4 40r 6 1 29r 5 38r 6 1 30r 6 61r 1 48r 3 1 6 4 40r 1 28r 5 39r 6 1 30r 6 61r 1 48r 3 1 6 4 40r 6 1 26r 6 5 39r 6 1 30r 6 61r 1 48r 3 1 6 4 40r 6 1 25r 6 5 40r 6 1 30r 6 61r 1 48r 3 1 6 4 41r 6 1 23r 5 42r 6 1 31r 6 59r 1 49r 3 1r 1 4 42r 6 7r 1 13r 5 43r 6 1r 1 31r 6 59r 1 50r 3 1 4 42r 6 1 9r 6 3r 1 2r 5 46r 6 1 1r 3 1 29r 6 59r 1 50r 3 1 4 42r 6 1 12r 6 1r 1 1r 5 48r 6 47r 6 1 3 1r 1 29r 6 58r 1 53r 6 4 40r 6 1 13r 6 2r 5 47r 6 1 1r 3 1r 1 29r 6 58r 1 54r 4 40r 6 1 14r 6 1r 5 47r 6 1 3 2r 1 29r 6 58r 1 54r 4 39r 6 1 15r 6 5 48r 6 1 3 2r 1 29r 6 58r 1 54r 6 4 38r 6 1 15r 6 5 48r 6 1 3 1r 1 31r 6 57r 1 54r 6 4 38r 6 1 16r 5 47r 6 1 3 2r 1 31r 6 57r 1 55r 4 38r 6 1 16r 5 47r 6 1 3 2r 1 31r 6 57r 1 55r 6 4 37r 6 1 5r 3 4r 1 5r 5 47r 6 1 3 1r 1 32r 6 57r 1 55r 6 4 36r 6 1 5r 3 6r 1 4r 6 5 45r 6 1 1r 3 1r 1 33r 6 57r 1 55r 4 36r 6 1 4r 3 8r 1 3r 6 5 45r 6 1 1r 3 1 34r 6 57r 1 55r 6 4 35r 6 1 3r 3 9r 1 3r 6 5 44r 6 1r 1 1r 3 1 34r 6 58r 1 55r 4 35r 6 1 2r 3 11r 1 2r 6 5 44r 6 1 38r 6 59r 1 54r 6 4 33r 6 1 2r 3 12r 1 3r 5 43r 6 1r 1 38r 6 60r 1 54r 4 33r 6 1 2r 3 13r 1 2r 5 43r 6 1 40r 6 60r 1 53r 6 4 32r 6 1 1r 3 14r 1 2r 6 5 41r 6 1r 1 40r 6 62r 1 52r 4 31r 6 1 2r 3 15r 1 1r 6 5 41r 6 1 41r 6 63r 1 51r 6 4 29r 6 1 3r 3 15r 1 1r 6 5 40r 6 1 42r 6 64r 1 47r 3 2r 1 6 4 28r 6 1 3r 3 16r 1 6 5 39r 6 1r 1 42r 6 65r 1 46r 3 2r 1 1r 6 4 26r 6 1 3 1r 1 1r 3 16r 1 2r 6 5 38r 6 1 43r 6 66r 1 46r 3 2r 1 6 4 25r 6 1 2r 3 1 1r 3 16r 1 1r 6 5 37r 6 1r 1 44r 6 65r 1 47r 3 1r 1 1r 6 4 23r 6 1r 1 1r 3 1r 1 1r 3 15r 1 2r 6 5 36r 6 1r 1 45r 6 66r 1 47r 3 1r 1 6 1r 4 21r 6 1r 1 2r 3 1r 1 1r 3 14r 1 2r 3 1 5 35r 6 1r 1 46r 6 66r 1 48r 3 1r 1 6 1r 4 19r 6 1r 1 2r 3 2r 1 3 15r 1 2r 3 1 5 35r 6 1 47r 6 66r 1 52r 6 1 4r 4 6r 6 1r 1 1r 3 4r 1 45r 6 3r 3 1r 1 3 17r 1 3 1r 1 6 5 33r 6 1 48r 6 67r 1 53r 6 1r 4 1 1r 6 4r 1 3r 3 24r 1 6 1r 5 31r 6 1r 1 48r 6 67r 1 54r 6 2r 4 3r 6 9r 1 4r 3 24r 1 1r 6 1r 5 29r 6 1r 1 49r 6 67r 1 56r 6 13r 1 6r 3 23r 1 2r 6 1r 5 26r 6 2r 1 1r 3 2r 1 45r 6 68r 1 57r 6 9r 1 7r 3 25r 1 2r 6 5 25r 6 2r 1 1r 3 2r 1 45r 6 69r 1 51r 3 1r 1 21r 3 24r 1 3r 6 2r 5 22r 6 1r 1 1r 3 4r 1 45r 6 69r 1 52r 3 2r 1 18r 3 25r 1 4r 6 1r 5 20r 6 2r 1 1r 3 4r 1 46r 6 69r 1 53r 3 1r 1 18r 3 26r 1 5r 6 1r 5 16r 6 3r 1 1r 3 4r 1 46r 6 71r 1 52r 3 3r 1 16r 3 26r 1 6r 6 2r 5 12r 6 3r 1 3r 3 2r 1 48r 6 71r 1 54r 3 1r 1 16r 3 27r 1 7r 6 4r 5 6r 6

3r 1 4r 3 2r 1 49r 6 71r 1 74r 3 27r 1 8r 6 11r 1 5r 3 2r 1
49r 6 73r 1 74r 3 26r 1 24r 3 1r 1 51r 6 74r 1 75r 3 25r 1 21r 3
3r 1 51r 6 76r 1 76r 3 22r 1 22r 3 1r 1 53r 6 76r 1 78r 3 18r 1
79r 6 78r 1 79r 3 14r 1 80r 6 81r 1 84r 3 5r 1 80r 6 84r 1 168r 6
88r 1 164r 6 92r 1 160r 6 97r 1 155r 6 101r 1 150r 6 108r 1
144r 6 114r 1 137r 6 121r 1 58r 6 6r 1 64r 6 130r 1 47r 6 14r 1
57r 6 140r 1 37r 6 21r 1 49r 6 151r 1 26r 6 30r 1 40r 6 220r 1
27r 6 36292r 2 9r 6 239r 2 22r 6 228r 2 20r 3 3r 2 9r 6 216r 2
24r 3 7r 2 13r 6 206r 2 26r 3 11r 2 18r 6 194r 2 31r 3 11r 2
22r 6 186r 2 34r 3 11r 2 24r 6 181r 2 27r 6 3r 2 6r 3 9r 2 26r 6
177r 2 22r 6 16r 2 3r 3 6r 2 28r 6 173r 2 21r 6 4r 4 11r 6 6r 2
4r 3 2 31r 6 169r 2 20r 6 4r 4 17r 6 8r 2 34r 6 165r 2 17r 6
7r 4 20r 6 1 1r 6 9r 2 31r 6 162r 2 14r 6 6r 4 25r 6 1 2r 6
24r 2 17r 6 158r 2 14r 6 3r 4 31r 1 2r 6 2r 5 21r 6 3r 2 14r 6
155r 2 15r 6 1r 4 33r 6 1 1r 6 2r 5 25r 6 2r 2 14r 6 152r 2
14r 6 1r 4 35r 1 2r 6 2r 5 28r 6 1r 2 13r 6 149r 2 14r 6 2r 4
35r 6 1 2r 6 2r 5 29r 6 2r 2 13r 6 146r 2 14r 6 1r 4 36r 6 1
3r 6 2r 5 30r 6 2r 2 13r 6 143r 2 14r 6 1r 4 37r 6 1 5r 6 2r 5
31r 6 1r 2 14r 6 140r 2 14r 6 1r 4 37r 6 1 6r 6 2r 5 32r 6 1r 2
14r 6 138r 2 14r 6 1r 4 37r 6 1r 1 6r 6 2r 5 33r 6 1r 2 14r 6
135r 2 16r 6 4 37r 6 1r 1 8r 6 2r 5 33r 6 1r 2 15r 6 132r 2
16r 6 4 37r 6 1r 1 9r 6 2r 5 33r 6 1r 2 16r 6 129r 2 17r 6 4
38r 6 1 11r 6 2r 5 33r 6 1r 2 16r 6 127r 2 17r 6 1r 4 37r 6
1r 1 11r 6 2r 5 34r 6 1r 2 17r 6 123r 2 18r 6 1r 4 37r 6 1r 1
12r 6 3r 5 34r 6 1r 2 18r 6 120r 2 18r 6 1r 4 38r 6 1 14r 6
2r 5 34r 6 1r 2 19r 6 118r 2 19r 6 4 38r 6 1 16r 6 2r 5 34r 6
1r 2 20r 6 118r 2 16r 6 1r 4 37r 6 1 18r 6 1r 5 35r 6 1r 2 20r 6
113r 1 2r 6 2r 2 13r 6 4 38r 6 1 19r 6 1r 5 36r 6 1r 2 20r 6
110r 1 7r 6 2r 2 9r 6 1r 4 37r 6 1 21r 6 1r 5 36r 6 2 22r 6
107r 1 11r 6 1r 2 7r 6 4 37r 6 1 23r 6 5 36r 6 1r 2 22r 6 103r 1
17r 6 1r 2 3r 6 1r 4 36r 6 1 25r 5 37r 6 1r 2 22r 6 87r 1 34r 6
1r 2 6 1r 4 36r 6 1 26r 6 5 36r 6 1r 2 3 2 21r 6 84r 1 38r 6
2r 4 35r 6 1 27r 6 5 37r 6 2 3 1r 2 20r 6 82r 1 41r 6 4 35r 6
1r 1 28r 6 5 37r 6 2 3 2 17r 6 84r 1 42r 6 4 34r 6 1r 1 29r 6
5 37r 6 2 3 1r 2 14r 6 4r 1 2r 6 77r 1 43r 6 4 34r 6 1 30r 6
5 37r 6 2 3 1r 2 12r 6 3r 1 6r 6 74r 1 45r 6 4 33r 6 1 32r 6
5 37r 6 3 1r 2 8r 6 5r 1 8r 6 74r 1 44r 6 4 34r 6 1 33r 6 5
36r 6 2 3 1r 2 5r 6 3r 1 13r 6 72r 1 45r 6 4 34r 6 1 34r 6 5
35r 6 2 3 1r 2 2r 6 2r 1 18r 6 71r 1 45r 6 4 34r 6 1 35r 5 36r 6
2 2r 6 1 22r 6 70r 1 46r 6 4 34r 6 1 35r 6 5 35r 6 2r 1 25r 6
69r 1 46r 6 4 34r 6 1 36r 5 35r 6 1r 3 1 25r 6 69r 1 46r 6 4
34r 6 1 36r 6 5 34r 6 1r 3 1 26r 6 67r 1 47r 6 4 34r 6 1 36r 6
5 35r 1 28r 6 67r 1 47r 6 4 34r 6 1 37r 5 35r 6 1 27r 6 67r 1
47r 6 4 35r 1 37r 6 5 34r 6 1 28r 6 65r 1 48r 6 4 35r 6 1 36r 6
5 34r 6 1 28r 6 65r 1 48r 6 4 36r 6 1 35r 6 5 34r 6 1 29r 6
64r 1 48r 6 4 37r 1 34r 6 5 35r 6 1 29r 6 63r 1 49r 6 4 37r 6
1 33r 5 36r 6 1 29r 6 63r 1 49r 6 4 37r 6 1 32r 6 5 36r 6 1
30r 6 62r 1 49r 6 4 38r 1 32r 6 5 36r 6 1 30r 6 61r 1 50r 6
4 38r 6 1 31r 5 37r 6 1 30r 6 61r 1 48r 3 1 6 4 39r 6 1 29r 5
38r 6 1 31r 6 60r 1 48r 3 1 1r 4 39r 6 1 28r 6 5 38r 6 1 31r 6
59r 1 49r 3 1 1r 4 40r 6 1 27r 5 38r 6 1r 1 31r 6 59r 1 49r 3
1r 1 6 4 39r 6 1 26r 5 39r 6 1 32r 6 59r 1 49r 3 1r 1 6 4 39r 6
1r 1 24r 5 40r 6 1 33r 6 58r 1 50r 3 1 6 4 40r 6 12r 1 10r 5
42r 6 1 33r 6 57r 1 51r 3 1 6 4 40r 6 2r 1 4r 6 6r 1 4r 6 1r 5

44r 6 1 33r 6 57r 1 51r 3 1r 1 4 40r 6 1r 1 10r 6 2r 1 2r 6
5 45r 6 1r 1 33r 6 57r 1 51r 3 1r 1 6 4 39r 6 1 13r 6 1r 1 6
5 46r 6 1 34r 6 57r 1 52r 3 1 6 4 39r 6 1 14r 6 1r 5 47r 6 1
1r 3 1 31r 6 57r 1 52r 3 1 6 4 39r 6 1 14r 6 1r 5 47r 6 1 3
1r 1 31r 6 56r 1 56r 6 4 37r 6 1 15r 6 5 47r 6 1r 1 3 1r 1 32r 6
55r 1 56r 6 4 37r 6 1 15r 6 5 47r 6 1 1r 3 1r 1 32r 6 55r 1
56r 6 4 37r 6 1 16r 5 47r 6 1 3 2r 1 32r 6 55r 1 57r 6 4 36r 6
1 6r 3 2r 1 6r 5 47r 6 1 3 1r 1 33r 6 55r 1 57r 6 4 36r 6 1
5r 3 4r 1 5r 6 5 45r 6 1 3 2r 1 33r 6 55r 1 57r 6 4 35r 6 1
4r 3 7r 1 4r 6 5 45r 6 1 3 2r 1 34r 6 54r 1 57r 6 1r 4 34r 6
1 3r 3 9r 1 3r 6 5 44r 6 1r 1 3 1r 1 35r 6 54r 1 58r 6 4 34r 6
1 2r 3 10r 1 3r 6 5 44r 6 1 3 2r 1 35r 6 54r 1 58r 6 1r 4 32r 6
1 3r 3 11r 1 3r 5 43r 6 1r 1 3 1r 1 36r 6 55r 1 58r 6 4 32r 6
1 2r 3 13r 1 2r 6 5 42r 6 1 1r 3 1r 1 36r 6 55r 1 58r 6 1r 4
31r 6 1 1r 3 14r 1 2r 6 5 41r 6 1 1r 3 1r 1 37r 6 56r 1 58r 6
4 30r 6 1 2r 3 15r 1 1r 6 5 41r 6 1 1r 3 1 38r 6 57r 1 57r 6
1r 4 28r 6 1r 1 1r 3 16r 1 1r 6 5 40r 6 1 43r 6 56r 1 58r 6
4 28r 6 1 3r 3 16r 1 6 1r 5 38r 6 1r 1 43r 6 57r 1 57r 6 1r 4
26r 6 1 3 1r 1 1r 3 16r 1 1r 6 5 38r 6 1 44r 6 59r 1 53r 3 1r 1
6 1r 4 23r 6 2r 1 3 1r 1 2r 3 15r 1 1r 6 5 37r 6 1r 1 44r 6
60r 1 52r 3 2r 1 6 1r 4 22r 6 1r 1 1r 3 1r 1 2r 3 14r 1 2r 6
1r 5 35r 6 1r 1 45r 6 61r 1 51r 3 3r 1 6 4 19r 6 3r 1 2r 3 1r 1
1r 3 15r 1 2r 6 1r 5 34r 6 1r 1 46r 6 63r 1 50r 3 2r 1 1r 6
1r 4 15r 6 4r 1 2r 3 2r 1 1r 3 15r 1 1r 3 1 6 5 34r 6 1 47r 6
64r 1 50r 3 2r 1 6 2r 4 13r 6 5r 1 2r 3 1r 1 1r 3 16r 1 1r 3
1 6 1r 5 32r 6 1 48r 6 65r 1 51r 3 1 2r 6 2r 4 10r 6 4r 1 3r 3
1r 1 2r 3 16r 1 3 1r 1 6 1r 5 31r 6 1r 1 48r 6 65r 1 56r 6 16r 1
4r 3 1r 1 1r 3 20r 1 1r 6 1r 5 29r 6 1r 1 49r 6 66r 1 57r 6
12r 1 5r 3 2r 1 3 22r 1 1r 6 1r 5 26r 6 2r 1 50r 6 66r 1 59r 6
9r 1 6r 3 1r 1 3 23r 1 1r 6 2r 5 24r 6 3r 1 50r 6 67r 1 74r 3
1r 1 3 25r 1 1r 6 2r 5 22r 6 2r 1 52r 6 67r 1 76r 3 26r 1 2r 6
2r 5 20r 6 2r 1 53r 6 68r 1 53r 3 3r 1 16r 3 25r 1 5r 6 2r 5
17r 6 2r 1 1r 3 3r 1 48r 6 69r 1 54r 3 2r 1 16r 3 26r 1 5r 6
2r 5 14r 6 2r 1 2r 3 3r 1 49r 6 69r 1 54r 3 2r 1 16r 3 26r 1
7r 6 2r 5 10r 6 3r 1 1r 3 4r 1 49r 6 71r 1 55r 3 3r 1 14r 3
26r 1 8r 6 4r 5 2r 6 4r 1 2r 3 5r 1 50r 6 71r 1 75r 3 25r 1
12r 6 5r 1 5r 3 4r 1 50r 6 72r 1 76r 3 25r 1 23r 3 2r 1 52r 6
73r 1 76r 3 23r 1 21r 3 3r 1 53r 6 74r 1 78r 3 20r 1 21r 3 2r 1
54r 6 76r 1 79r 3 16r 1 80r 6 78r 1 81r 3 11r 1 81r 6 80r 1
172r 6 84r 1 168r 6 88r 1 164r 6 92r 1 160r 6 96r 1 156r 6 101r 1
150r 6 108r 1 144r 6 114r 1 137r 6 122r 1 56r 6 7r 1 64r 6 130r 1
46r 6 15r 1 57r 6 142r 1 34r 6 23r 1 48r 6 154r 1 23r 6 31r 1
39r 6 221r 1 26r 6 36547r 2 12r 6 236r 2 25r 6 225r 2 21r 3
5r 2 9r 6 214r 2 24r 3 9r 2 13r 6 204r 2 27r 3 11r 2 18r 6 193r 2
30r 3 13r 2 21r 6 186r 2 34r 3 11r 2 24r 6 181r 2 23r 6 7r 2
1r 6 2 5r 3 6r 2 28r 6 176r 2 22r 6 17r 2 2r 3 5r 2 30r 6 172r 2
22r 6 3r 4 10r 6 7r 2 38r 6 168r 2 22r 6 2r 4 14r 6 5r 1 6 4r 2
35r 6 164r 2 17r 6 5r 4 19r 6 3r 1 2r 6 9r 2 30r 6 161r 2 16r 6
4r 4 23r 6 3r 1 2r 6 26r 2 15r 6 158r 2 15r 6 3r 4 26r 6 2r 1
2r 6 3r 5 23r 6 1r 2 15r 6 154r 2 15r 6 3r 4 28r 6 2r 1 2r 6
2r 5 25r 6 3r 2 13r 6 152r 2 14r 6 3r 4 30r 6 2r 1 2r 6 2r 5
27r 6 2r 2 14r 6 148r 2 15r 6 3r 4 30r 6 2r 1 3r 6 2r 5 29r 6
2r 2 13r 6 146r 2 15r 6 3r 4 30r 6 3r 1 4r 6 1r 5 31r 6 1r 2
14r 6 142r 2 15r 6 3r 4 32r 6 2r 1 5r 6 1r 5 31r 6 2r 2 14r 6

140r 2 15r 6 3r 4 32r 6 2r 1 6r 6 2r 5 32r 6 1r 2 14r 6 137r 2
16r 6 3r 4 33r 6 1r 1 7r 6 2r 5 33r 6 1r 2 15r 6 134r 2 16r 6
2r 4 34r 6 1r 1 9r 6 1r 5 34r 6 1r 2 15r 6 131r 2 18r 6 1r 4
34r 6 1r 1 10r 6 2r 5 34r 6 2 17r 6 127r 2 19r 6 2r 4 33r 6
2r 1 11r 6 2r 5 34r 6 2 17r 6 125r 2 19r 6 1r 4 35r 6 1r 1 12r 6
2r 5 34r 6 1r 2 18r 6 121r 2 20r 6 1r 4 35r 6 1r 1 14r 6 2r 5
34r 6 1r 2 18r 6 120r 2 19r 6 1r 4 35r 6 1r 1 15r 6 2r 5 35r 6
2 20r 6 120r 2 16r 6 1r 4 35r 6 1r 1 17r 6 2r 5 35r 6 2 21r 6
113r 1 4r 6 1r 2 13r 6 2r 4 34r 6 1r 1 18r 6 2r 5 35r 6 1r 2
21r 6 110r 1 9r 6 1r 2 10r 6 1r 4 34r 6 1r 1 20r 6 1r 5 36r 6
1r 2 21r 6 90r 1 7r 6 8r 1 13r 6 1r 2 7r 6 1r 4 34r 6 1r 1 22r 6
5 37r 6 2 23r 6 86r 1 35r 6 2 4r 6 2r 4 33r 6 2r 1 22r 6 5 38r 6
2 23r 6 83r 1 39r 6 2 2r 6 2r 4 32r 6 2r 1 24r 6 5 37r 6 2 24r 6
81r 1 42r 6 3r 4 32r 6 2r 1 25r 6 5 38r 6 2 22r 6 80r 1 45r 6
2r 4 31r 6 2r 1 26r 6 5 38r 6 2 20r 6 81r 1 46r 6 1r 4 31r 6
2r 1 28r 6 5 38r 6 2 17r 6 3r 1 3r 6 75r 1 46r 6 1r 4 31r 6
2r 1 28r 6 5 38r 6 2 3 2 12r 6 4r 1 6r 6 73r 1 46r 6 2r 4 30r 6
2r 1 30r 6 5 37r 6 2 3 1r 2 8r 6 5r 1 9r 6 72r 1 46r 6 1r 4
31r 6 1r 1 32r 6 5 36r 6 2 3 1r 2 5r 6 5r 1 12r 6 71r 1 47r 6
1r 4 31r 6 1r 1 33r 6 5 36r 6 2 3 2 2r 6 4r 1 17r 6 70r 1 47r 6
1r 4 31r 6 1r 1 34r 6 5 35r 6 1r 2 6 3r 1 22r 6 69r 1 47r 6
1r 4 31r 6 1r 1 34r 6 5 36r 6 2r 1 25r 6 68r 1 48r 6 1r 4 31r 6
1r 1 35r 6 5 35r 1 3 1r 1 26r 6 67r 1 48r 6 1r 4 31r 6 1r 1
35r 6 5 35r 1 3 1r 1 26r 6 67r 1 48r 6 1r 4 31r 6 1r 1 36r 5
35r 6 1 3 1 27r 6 65r 1 49r 6 1r 4 32r 6 1 36r 6 5 34r 6 1 3
1 27r 6 65r 1 49r 6 1r 4 32r 6 1 37r 5 34r 6 1 3 1 27r 6 65r 1
49r 6 1r 4 33r 6 1 36r 5 34r 6 1 30r 6 63r 1 50r 6 1r 4 33r 6
1r 1 34r 6 5 34r 6 1 30r 6 63r 1 50r 6 1r 4 33r 6 1r 1 34r 6
5 34r 6 1 31r 6 62r 1 50r 6 1r 4 34r 6 1r 1 33r 6 5 34r 6 1
31r 6 61r 1 51r 6 1r 4 35r 6 1 33r 5 35r 6 1 32r 6 60r 1 51r 6
1r 4 35r 6 1r 1 31r 6 5 35r 6 1 32r 6 60r 1 51r 6 1r 4 36r 6
1 31r 6 5 35r 6 1 32r 6 59r 1 52r 6 1r 4 36r 6 1r 1 29r 6 5
36r 6 1 33r 6 58r 1 52r 6 1r 4 37r 6 1 29r 5 37r 6 1 33r 6 58r 1
52r 6 1r 4 37r 6 1r 1 27r 6 5 37r 6 1 33r 6 57r 1 53r 6 2r 4
37r 6 1 27r 5 38r 6 1 34r 6 56r 1 53r 6 2r 4 37r 6 1 1r 6 5r 1
17r 5 40r 6 1 34r 6 56r 1 51r 3 1 6 2r 4 37r 6 14r 1 10r 5 40r 6
1r 1 34r 6 56r 1 51r 3 1 1r 6 1r 4 37r 6 2r 1 9r 6 3r 1 6r 5
42r 6 1 35r 6 55r 1 52r 3 1r 1 6 1r 4 37r 6 1r 1 12r 6 1r 1
3r 6 5 44r 6 1 35r 6 55r 1 53r 3 1 6 2r 4 36r 6 1r 1 13r 6 1r 1
6 5 46r 6 1 35r 6 55r 1 53r 3 1r 1 6 1r 4 36r 6 1r 1 14r 6 1r 5
47r 6 1 35r 6 55r 1 53r 3 1r 1 6 1r 4 36r 6 1r 1 14r 6 1r 5
46r 6 1r 1 36r 6 54r 1 53r 3 1r 1 6 2r 4 35r 6 1 15r 6 5 47r 6
1 37r 6 54r 1 54r 3 1 6 2r 4 34r 6 1r 1 16r 5 47r 6 1 37r 6
54r 1 55r 3 1 6 1r 4 34r 6 1r 1 16r 6 5 45r 6 1r 1 1r 3 1 34r 6
53r 1 56r 3 1 6 2r 4 33r 6 1r 1 5r 3 4r 1 5r 6 5 45r 6 1r 1
3 1r 1 34r 6 53r 1 58r 6 2r 4 32r 6 2r 1 4r 3 6r 1 4r 6 5 44r 6
1r 1 1r 3 1r 1 34r 6 53r 1 59r 6 2r 4 31r 6 1r 1 4r 3 7r 1 4r 6
5 44r 6 1 1r 3 1r 1 35r 6 53r 1 59r 6 2r 4 31r 6 1r 1 3r 3 9r 1
3r 6 5 44r 6 1 3 2r 1 36r 6 52r 1 59r 6 2r 4 30r 6 2r 1 2r 3
11r 1 2r 6 5 43r 6 1r 1 3 2r 1 36r 6 52r 1 60r 6 2r 4 29r 6
2r 1 1r 3 12r 1 3r 5 42r 6 1r 1 3 2r 1 37r 6 52r 1 60r 6 2r 4
28r 6 2r 1 1r 3 14r 1 2r 6 5 41r 6 1 1r 3 2r 1 37r 6 53r 1 60r 6
2r 4 27r 6 2r 1 1r 3 14r 1 2r 6 5 40r 6 1r 1 3 2r 1 38r 6 53r 1
60r 6 2r 4 26r 6 2r 1 1r 3 16r 1 1r 6 5 40r 6 1 3 3r 1 38r 6

53r 1 61r 6 2r 4 25r 6 2r 1 1r 3 16r 1 1r 6 5 39r 6 1r 1 3 2r 1
39r 6 54r 1 60r 6 2r 4 24r 6 2r 1 2r 3 17r 1 6 1r 5 38r 6 1
1r 3 1r 1 40r 6 55r 1 60r 6 2r 4 22r 6 2r 1 3r 3 18r 1 6 5 37r 6
1 2r 3 1 41r 6 56r 1 60r 6 2r 4 20r 6 2r 1 1r 3 1r 1 1r 3 17r 1
6 5 36r 6 1r 1 45r 6 57r 1 56r 3 2r 1 6 2r 4 18r 6 2r 1 2r 3
1r 1 1r 3 16r 1 1r 6 1r 5 34r 6 1r 1 47r 6 57r 1 55r 3 3r 1
6 2r 4 16r 6 3r 1 2r 3 1r 1 1r 3 15r 1 2r 6 1r 5 34r 6 1 48r 6
58r 1 55r 3 2r 1 1r 6 3r 4 13r 6 3r 1 2r 3 1r 1 2r 3 15r 1 1r 3
1 6 5 33r 6 1 49r 6 59r 1 54r 3 2r 1 2r 6 5r 4 8r 6 4r 1 2r 3
2r 1 1r 3 16r 1 3 1r 1 6 1r 5 31r 6 1r 1 49r 6 61r 1 54r 3 2r 1
1r 6 16r 1 4r 3 1r 1 1r 3 17r 1 3 2r 1 6 1r 5 29r 6 1r 1 50r 6
62r 1 55r 3 1 2r 6 13r 1 5r 3 1r 1 2r 3 18r 1 3 1r 1 6 1r 5
28r 6 1r 1 51r 6 63r 1 61r 6 8r 1 7r 3 1r 1 1r 3 19r 1 3 1r 1
1r 6 1r 5 26r 6 1r 1 52r 6 64r 1 76r 3 1r 1 1r 3 20r 1 1r 3
1r 1 1r 6 1r 5 24r 6 1r 1 53r 6 65r 1 75r 3 1r 1 3 22r 1 3 1r 1
2r 6 1r 5 21r 6 2r 1 53r 6 66r 1 74r 3 1r 1 3 23r 1 1r 3 1r 1
2r 6 1r 5 19r 6 2r 1 54r 6 67r 1 72r 3 28r 1 3 2r 1 2r 6 2r 5
15r 6 2r 1 56r 6 67r 1 56r 3 4r 1 13r 3 26r 1 3 1r 1 3r 6 3r 5
11r 6 3r 1 3r 3 1 51r 6 69r 1 55r 3 7r 1 11r 3 25r 1 1r 3 1
5r 6 7r 5 2r 6 3r 1 2r 3 4r 1 51r 6 69r 1 58r 3 5r 1 10r 3 25r 1
11r 6 8r 1 3r 3 5r 1 51r 6 71r 1 75r 3 25r 1 2r 3 1 16r 3 7r 1
52r 6 71r 1 77r 3 24r 1 1r 3 1r 1 12r 3 8r 1 53r 6 73r 1 77r 3
22r 1 17r 3 6r 1 54r 6 74r 1 78r 3 20r 1 17r 3 5r 1 55r 6 76r 1
80r 3 15r 1 80r 6 78r 1 83r 3 9r 1 81r 6 80r 1 172r 6 84r 1
168r 6 87r 1 165r 6 92r 1 160r 6 96r 1 156r 6 101r 1 151r 6
107r 1 144r 6 115r 1 137r 6 121r 1 55r 6 8r 1 64r 6 131r 1 45r 6
16r 1 57r 6 142r 1 33r 6 23r 1 48r 6 155r 1 21r 6 32r 1 39r 6
222r 1 24r 6 36802r 2 16r 6 234r 2 18r 3 1r 2 5r 6 224r 2 21r 3
6r 2 10r 6 212r 2 25r 3 9r 2 14r 6 201r 2 28r 3 12r 2 18r 6
192r 2 30r 3 13r 2 21r 6 186r 2 33r 3 12r 2 24r 6 181r 2 23r 6
11r 2 4r 3 6r 2 28r 6 176r 2 22r 6 17r 2 2r 3 5r 2 30r 6 172r 2
22r 6 7r 4 1r 6 4 2r 6 8r 2 4r 3 2 32r 6 168r 2 22r 6 2r 4 13r 6
5r 1 6 4r 2 4r 6 2 30r 6 164r 2 18r 6 4r 4 18r 6 3r 1 2r 6 10r 2
8r 6 2r 2 18r 6 161r 2 17r 6 3r 4 22r 6 3r 1 2r 6 19r 5 2r 6
4r 2 15r 6 157r 2 17r 6 2r 4 25r 6 2r 1 3r 6 2r 5 23r 6 2r 2
14r 6 155r 2 16r 6 2r 4 27r 6 2r 1 3r 6 1r 5 25r 6 4r 2 13r 6
151r 2 16r 6 2r 4 29r 6 1r 1 4r 6 1r 5 27r 6 3r 2 14r 6 148r 2
16r 6 2r 4 30r 6 1r 1 4r 6 1r 5 29r 6 3r 2 13r 6 145r 2 16r 6
3r 4 30r 6 1r 1 5r 6 1r 5 31r 6 2r 2 14r 6 142r 2 16r 6 2r 4
32r 6 1r 1 5r 6 2r 5 31r 6 2r 2 14r 6 139r 2 17r 6 2r 4 32r 6
1r 1 6r 6 2r 5 33r 6 1r 2 14r 6 137r 2 16r 6 3r 4 32r 6 2r 1
6r 6 3r 5 33r 6 1r 2 15r 6 133r 2 18r 6 2r 4 33r 6 1r 1 8r 6
2r 5 34r 6 2 16r 6 130r 2 19r 6 2r 4 33r 6 1r 1 9r 6 3r 5 34r 6
2 17r 6 126r 2 20r 6 2r 4 33r 6 1r 1 11r 6 2r 5 35r 6 2 18r 6
123r 2 20r 6 2r 4 33r 6 1r 1 12r 6 2r 5 35r 6 1r 2 18r 6 123r 2
18r 6 2r 4 33r 6 2r 1 13r 6 2r 5 35r 6 2 20r 6 117r 1 2r 6 2r 2
15r 6 2r 4 33r 6 2r 1 14r 6 2r 5 36r 6 2 21r 6 114r 1 5r 6 2r 2
13r 6 1r 4 33r 6 2r 1 16r 6 2r 5 36r 6 2 21r 6 91r 1 9r 6 9r 1
9r 6 2r 2 10r 6 1r 4 33r 6 2r 1 18r 6 1r 5 36r 6 1r 2 22r 6
87r 1 34r 6 2r 2 6r 6 2r 4 33r 6 1r 1 19r 6 1r 5 37r 6 2 23r 6
85r 1 38r 6 1r 2 3r 6 3r 4 32r 6 1r 1 21r 6 5 38r 6 2 23r 6
82r 1 41r 6 3r 2 6 2r 4 32r 6 1r 1 23r 6 5 37r 6 1r 2 23r 6
80r 1 44r 6 5r 4 32r 6 1 24r 6 5 38r 6 2 22r 6 80r 1 46r 6 3r 4
32r 6 1r 1 24r 6 5 38r 6 1r 2 19r 6 3r 1 6 76r 1 48r 6 2r 4

31r 6 1r 1 26r 6 5 38r 6 2 17r 6 4r 1 3r 6 74r 1 47r 6 2r 4
31r 6 1r 1 27r 6 5 38r 6 2 14r 6 6r 1 5r 6 72r 1 48r 6 2r 4
31r 6 1r 1 27r 6 1r 5 38r 6 2 11r 6 4r 1 9r 6 72r 1 48r 6 2r 4
30r 6 1r 1 30r 6 5 37r 6 2 8r 6 2r 1 15r 6 71r 1 48r 6 2r 4
30r 6 1r 1 31r 5 37r 6 2 4r 6 4r 1 18r 6 69r 1 49r 6 2r 4 30r 6
1r 1 31r 6 5 37r 6 2 6 3r 1 23r 6 68r 1 48r 6 3r 4 30r 6 1r 1
32r 6 5 37r 6 1r 1 26r 6 68r 1 48r 6 2r 4 31r 6 1r 1 33r 6 5
35r 6 1r 1 28r 6 66r 1 49r 6 2r 4 31r 6 1r 1 33r 6 5 35r 6 1r 3
1r 1 26r 6 66r 1 49r 6 2r 4 31r 6 1 35r 6 5 34r 6 1r 3 1r 1
27r 6 65r 1 49r 6 2r 4 31r 6 1 35r 6 5 34r 6 1 3 1r 1 27r 6
64r 1 50r 6 1r 4 32r 6 1r 1 35r 5 34r 6 1 3 1r 1 28r 6 63r 1
50r 6 1r 4 33r 6 1 35r 6 5 33r 6 1 1r 3 1 29r 6 62r 1 50r 6
1r 4 33r 6 1r 1 33r 6 5 35r 1 1r 3 1 29r 6 61r 1 51r 6 1r 4
33r 6 1r 1 34r 6 5 34r 6 1 3 1 30r 6 60r 1 51r 6 1r 4 34r 6
1r 1 33r 5 35r 6 1 32r 6 60r 1 51r 6 1r 4 34r 6 1r 1 33r 5 35r 6
1 33r 6 59r 1 51r 6 1r 4 35r 6 1r 1 32r 5 34r 6 1r 1 33r 6 58r 1
52r 6 2r 4 34r 6 1r 1 31r 6 5 35r 6 1 33r 6 58r 1 52r 6 2r 4
35r 6 1r 1 29r 6 5 36r 6 1 34r 6 57r 1 52r 6 2r 4 35r 6 1r 1
29r 5 36r 6 1r 1 34r 6 56r 1 53r 6 2r 4 35r 6 2r 1 27r 6 5 36r 6
1r 1 35r 6 55r 1 54r 6 1r 4 36r 6 1r 1 27r 5 37r 6 1 36r 6 55r 1
54r 6 1r 4 36r 6 13r 1 14r 5 38r 6 1 36r 6 54r 1 55r 6 1r 4
36r 6 5r 1 6 9r 1 9r 5 40r 6 1 37r 6 53r 1 55r 6 1r 4 36r 6
3r 1 10r 6 2r 1 7r 5 41r 6 1 37r 6 53r 1 55r 6 2r 4 35r 6 2r 1
13r 6 1 4r 6 5 42r 6 1r 1 37r 6 53r 1 53r 3 1 1r 6 1r 4 35r 6
2r 1 13r 6 1r 1 1r 5 45r 6 1 38r 6 53r 1 53r 3 1r 1 6 1r 4 35r 6
2r 1 14r 6 1r 5 46r 6 1 38r 6 52r 1 54r 3 1r 1 6 1r 4 35r 6
1r 1 15r 6 5 47r 6 1 38r 6 52r 1 55r 3 1r 1 6 4 35r 6 1r 1 15r 6
5 46r 6 1r 1 38r 6 52r 1 55r 3 1r 1 6 1r 4 34r 6 1r 1 16r 5
46r 6 1r 1 38r 6 52r 1 55r 3 1r 1 6 1r 4 34r 6 1r 1 7r 3 1r 1
6r 5 45r 6 1r 1 39r 6 52r 1 56r 3 1r 1 6 4 33r 6 2r 1 5r 3 4r 1
5r 5 45r 6 1r 1 39r 6 52r 1 57r 3 1 6 1r 4 32r 6 2r 1 4r 3 6r 1
4r 6 5 44r 6 1 40r 6 52r 1 59r 6 1r 4 32r 6 1r 1 4r 3 8r 1 3r 6
5 43r 6 1r 1 40r 6 52r 1 60r 6 4 32r 6 1r 1 3r 3 9r 1 3r 6 5
43r 6 1 2r 3 1 38r 6 51r 1 60r 6 4 31r 6 2r 1 1r 3 12r 1 2r 6
5 42r 6 1r 1 1r 3 1r 1 38r 6 51r 1 61r 6 4 30r 6 2r 1 1r 3 12r 1
3r 5 42r 6 1 1r 3 2r 1 38r 6 51r 1 61r 6 4 29r 6 2r 1 1r 3 14r 1
2r 6 5 40r 6 1r 1 1r 3 1r 1 39r 6 51r 1 61r 6 1r 4 27r 6 2r 1
1r 3 16r 1 1r 6 5 40r 6 1 1r 3 2r 1 39r 6 51r 1 62r 6 4 27r 6
2r 1 1r 3 16r 1 1r 6 5 39r 6 1r 1 3 2r 1 40r 6 51r 1 62r 6 1r 4
26r 6 1r 1 2r 3 17r 1 6 5 39r 6 1 3 3r 1 40r 6 51r 1 63r 6 1r 4
24r 6 1r 1 3r 3 17r 1 6 1r 5 37r 6 1 1r 3 2r 1 41r 6 52r 1 63r 6
1r 4 22r 6 2r 1 3r 3 18r 1 6 5 36r 6 1r 1 3 2r 1 42r 6 53r 1
63r 6 1r 4 21r 6 1r 1 4r 3 18r 1 6 5 35r 6 1r 1 1r 3 1r 1 43r 6
54r 1 63r 6 1r 4 19r 6 1r 1 2r 3 1r 1 3 18r 1 6 1r 5 33r 6 1r 1
2r 3 1r 1 43r 6 55r 1 58r 3 3r 1 6 1r 4 16r 6 2r 1 3r 3 1r 1
3 17r 1 1r 6 1r 5 32r 6 1r 1 49r 6 55r 1 58r 3 4r 1 6 1r 4 14r 6
2r 1 3r 3 1r 1 1r 3 17r 1 2r 6 1r 5 31r 6 1r 1 49r 6 57r 1 57r 3
3r 1 1r 6 2r 4 9r 6 4r 1 3r 3 2r 1 3 20r 1 6 2r 5 29r 6 1r 1
50r 6 58r 1 57r 3 2r 1 2r 6 4r 4 3r 6 5r 1 4r 3 2r 1 3 22r 1
6 2r 5 27r 6 1r 1 51r 6 59r 1 64r 6 10r 1 6r 3 1r 1 1r 3 22r 1
1r 6 2r 5 25r 6 1r 1 52r 6 61r 1 69r 6 1 8r 3 1r 1 1r 3 23r 1
1r 6 3r 5 22r 6 2r 1 53r 6 62r 1 77r 3 2r 1 1r 3 24r 1 1r 6
3r 5 20r 6 2r 1 54r 6 63r 1 76r 3 1r 1 1r 3 25r 1 2r 6 3r 5
17r 6 3r 1 55r 6 64r 1 74r 3 2r 1 3 27r 1 2r 6 4r 5 14r 6 2r 1
57r 6 65r 1 72r 3 2r 1 3 29r 1 2r 6 5r 5 10r 6 3r 1 57r 6 67r 1
57r 3 6r 1 5r 3 2r 1 1r 3 30r 1 3r 6 8r 5 4r 6 2r 1 59r 6 67r 1
58r 3 12r 1 4r 3 26r 1 3 2r 1 4r 6 12r 1 60r 6 69r 1 60r 3 7r 1
7r 3 25r 1 1r 3 2r 1 9r 6 2r 1 64r 6 69r 1 77r 3 25r 1 1r 3
4r 1 11r 3 5r 1 55r 6 70r 1 78r 3 24r 1 2r 3 20r 1 55r 6 72r 1
79r 3 21r 1 5r 3 17r 1 56r 6 73r 1 79r 3 18r 1 12r 3 8r 1 59r 6
74r 1 84r 3 11r 1 82r 6 77r 1 175r 6 80r 1 173r 6 82r 1 170r 6
86r 1 165r 6 92r 1 160r 6 96r 1 156r 6 102r 1 150r 6 107r 1
145r 6 114r 1 137r 6 122r 1 54r 6 8r 1 65r 6 130r 1 44r 6 17r 1
57r 6 142r 1 33r 6 23r 1 49r 6 155r 1 20r 6 33r 1 38r 6 222r 1
24r 6 37057r 2 18r 6 232r 2 19r 3 3r 2 5r 6 221r 2 23r 3 7r 2
10r 6 209r 2 26r 3 10r 2 14r 6 200r 2 27r 3 13r 2 18r 6 191r 2
31r 3 13r 2 22r 6 184r 2 35r 3 11r 2 25r 6 179r 2 10r 3 1r 2
10r 6 11r 2 3r 3 9r 2 27r 6 175r 2 12r 3 2 9r 6 3r 4 1r 6 4
1r 6 9r 2 2r 3 5r 2 29r 6 171r 2 23r 6 2r 4 9r 6 10r 2 7r 6
2 13r 3 2 13r 6 167r 2 23r 6 1r 4 13r 6 4r 1 2r 6 6r 2 2r 6
2 30r 6 163r 2 22r 4 18r 6 3r 1 4r 6 10r 2 6r 6 5r 2 17r 6 161r 2
17r 6 1r 4 23r 6 2r 1 4r 6 17r 5 5r 6 2r 2 16r 6 157r 2 18r 6
4 25r 6 2r 1 3r 6 3r 5 22r 6 3r 2 14r 6 154r 2 18r 6 4 27r 6
2r 1 3r 6 3r 5 24r 6 3r 2 14r 6 151r 2 17r 6 4 28r 6 2r 1 4r 6
2r 5 27r 6 3r 2 14r 6 147r 2 17r 6 1r 4 29r 6 2r 1 4r 6 2r 5
28r 6 3r 2 14r 6 145r 2 17r 6 4 31r 6 1r 1 5r 6 3r 5 29r 6 2r 2
15r 6 141r 2 18r 6 4 31r 6 2r 1 6r 6 2r 5 31r 6 2r 2 14r 6 139r 2
17r 6 1r 4 32r 6 1r 1 7r 6 2r 5 32r 6 2r 2 14r 6 136r 2 18r 6
1r 4 32r 6 2r 1 7r 6 3r 5 32r 6 1r 2 16r 6 132r 2 19r 6 1r 4
33r 6 1r 1 8r 6 3r 5 33r 6 1r 2 17r 6 128r 2 20r 6 1r 4 33r 6
1r 1 9r 6 4r 5 33r 6 1r 2 17r 6 126r 2 20r 6 1r 4 34r 6 1r 1
10r 6 3r 5 34r 6 1r 2 18r 6 125r 2 18r 6 1r 4 33r 6 2r 1 12r 6
2r 5 35r 6 2 20r 6 119r 1 2r 6 2r 2 16r 6 4 34r 6 1r 1 13r 6
3r 5 35r 6 2 21r 6 94r 1 6r 6 13r 1 6r 6 2r 2 13r 6 1r 4 33r 6
1r 1 15r 6 2r 5 35r 6 1r 2 21r 6 91r 1 12r 6 7r 1 11r 6 1r 2
10r 6 1r 4 33r 6 1r 1 16r 6 3r 5 35r 6 1r 2 22r 6 87r 1 36r 6
2r 2 6r 6 2r 4 32r 6 2r 1 17r 6 2r 5 36r 6 2 24r 6 83r 1 40r 6
3r 2 2r 6 2r 4 33r 6 1r 1 18r 6 3r 5 36r 6 2 24r 6 81r 1 43r 6
7r 4 32r 6 1r 1 20r 6 2r 5 37r 6 2 24r 6 79r 1 46r 6 5r 4 31r 6
1r 1 22r 6 1r 5 37r 6 2 22r 6 80r 1 48r 6 3r 4 31r 6 1r 1 23r 6
1r 5 38r 6 2 20r 6 3r 1 6 75r 1 50r 6 1r 4 31r 6 1r 1 24r 6
5 39r 6 2 17r 6 5r 1 2r 6 74r 1 49r 6 2r 4 31r 6 1r 1 25r 6
5 39r 6 2 14r 6 5r 1 6r 6 72r 1 49r 6 2r 4 30r 6 1r 1 26r 6
5 39r 6 2 11r 6 3r 1 11r 6 71r 1 50r 6 1r 4 31r 6 1r 1 27r 6
5 38r 6 2 7r 6 3r 1 16r 6 70r 1 50r 6 1r 4 31r 6 1 29r 6 5 37r 6
2 5r 6 2r 1 20r 6 69r 1 49r 6 2r 4 31r 6 1 30r 6 5 37r 6 2 2r 6
1 25r 6 67r 1 50r 6 2r 4 31r 6 1 31r 6 5 37r 2 6 1 28r 6 66r 1
50r 6 2r 4 31r 6 1 32r 6 5 36r 6 1 30r 6 65r 1 50r 6 2r 4 31r 6
1 32r 6 5 36r 6 1 32r 6 62r 1 51r 6 2r 4 31r 6 1 33r 6 5 35r 6
1 3 1 32r 6 60r 1 51r 6 2r 4 31r 6 1 34r 5 35r 6 1 3 1 35r 6
57r 1 51r 6 1r 4 33r 1 32r 6 1 5 35r 6 1 3 1 39r 6 53r 1 51r 6
1r 4 33r 1 32r 6 1r 5 35r 6 1 3 1 40r 6 51r 1 52r 6 1r 4 33r 6
1 32r 6 1r 5 34r 6 1 3 1 41r 6 50r 1 52r 6 1r 4 33r 6 1 32r 6 5
5 34r 6 1 3 1 41r 6 50r 1 52r 6 1r 4 33r 6 1r 1 32r 6 5 34r 6
1 3 1 42r 6 48r 1 53r 6 1r 4 34r 6 1r 1 31r 6 5 34r 6 1 3 1
42r 6 48r 1 53r 6 2r 4 33r 6 1r 1 31r 6 5 34r 6 1 3 1 42r 6
48r 1 53r 6 2r 4 34r 6 1r 1 29r 6 5 35r 6 1 44r 6 47r 1 54r 6
2r 4 34r 6 1r 1 29r 5 36r 6 1 45r 6 46r 1 54r 6 2r 4 35r 6 1
28r 6 5 36r 6 1 45r 6 46r 1 54r 6 2r 4 35r 6 1r 1 27r 5 37r 6
1 45r 6 45r 1 55r 6 2r 4 36r 6 1 1r 6 3r 1 20r 5 38r 6 1 45r 6
45r 1 55r 6 2r 4 36r 6 13r 1 12r 5 38r 6 1r 1 45r 6 45r 1 55r 6
2r 4 36r 6 2r 1 7r 6 4r 1 9r 5 39r 6 1r 1 46r 6 43r 1 57r 6
1r 4 36r 6 1r 1 12r 6 1r 1 7r 5 40r 6 1 47r 6 43r 1 57r 6 2r 4
35r 6 1r 1 13r 6 1 5r 5 41r 6 1r 1 48r 6 42r 1 57r 6 2r 4 34r 6
2r 1 14r 6 1 1r 6 5 43r 6 1r 1 48r 6 42r 1 57r 6 2r 4 34r 6
1r 1 15r 6 1r 5 45r 6 1 50r 6 41r 1 58r 6 1r 4 34r 6 1r 1 15r 6
5 45r 6 1r 1 50r 6 41r 1 55r 3 1r 1 6 1r 4 34r 6 1r 1 15r 6
5 45r 6 1r 1 50r 6 41r 1 55r 3 1r 1 6 2r 4 32r 6 2r 1 15r 6
5 45r 6 1 50r 6 42r 1 56r 3 1r 1 6 1r 4 32r 6 2r 1 6r 3 3r 1
5r 5 45r 6 1 50r 6 41r 1 57r 3 1r 1 6 2r 4 31r 6 2r 1 5r 3 5r 1
4r 5 44r 6 1r 1 51r 6 40r 1 58r 3 1r 6 2r 4 31r 6 1r 1 4r 3
7r 1 4r 6 5 43r 6 1 52r 6 40r 1 58r 3 1r 1 6 1r 4 30r 6 2r 1
3r 3 9r 1 3r 6 5 42r 6 1r 1 51r 6 41r 1 59r 3 1 6 1r 4 30r 6
2r 1 2r 3 10r 1 3r 6 5 42r 6 1 52r 6 41r 1 62r 6 1r 4 29r 6
2r 1 1r 3 12r 1 2r 6 1r 5 41r 6 1 52r 6 41r 1 62r 6 2r 4 27r 6
2r 1 1r 3 14r 1 1r 6 1r 5 40r 6 1r 1 52r 6 41r 1 63r 6 1r 4
26r 6 3r 1 1r 3 14r 1 2r 6 5 40r 6 1 2r 3 1 48r 6 42r 1 63r 6
2r 4 24r 6 3r 1 1r 3 16r 1 1r 6 5 39r 6 1 2r 3 1r 1 47r 6 43r 1
63r 6 3r 4 23r 6 2r 1 2r 3 16r 1 1r 6 5 38r 6 1r 1 1r 3 1r 1
47r 6 44r 1 64r 6 3r 4 21r 6 3r 1 2r 3 17r 1 6 1r 5 37r 6 1r 1
3 2r 1 46r 6 46r 1 64r 6 2r 4 19r 6 4r 1 2r 3 18r 1 6 1r 5 36r 6
1r 1 3 2r 1 46r 6 47r 1 65r 6 2r 4 17r 6 4r 1 3r 3 18r 1 1r 6
1r 5 34r 6 1r 1 3 3r 1 46r 6 48r 1 65r 6 3r 4 14r 6 4r 1 3r 3
20r 1 6 1r 5 33r 6 1r 1 1r 3 2r 1 46r 6 49r 1 66r 6 3r 4 11r 6
5r 1 4r 3 20r 1 6 2r 5 31r 6 1r 1 1r 3 2r 1 47r 6 50r 1 62r 3
1r 1 1r 6 3r 4 8r 6 6r 1 4r 3 21r 1 1r 6 2r 5 29r 6 1r 1 1r 3
2r 1 47r 6 52r 1 61r 3 3r 1 6 4r 4 4r 6 7r 1 4r 3 23r 1 6 3r 5
27r 6 1r 1 2r 3 1r 1 48r 6 53r 1 60r 3 4r 1 1r 6 14r 1 4r 3
24r 1 1r 6 2r 5 27r 6 1r 1 2r 3 1 49r 6 54r 1 60r 3 3r 1 3r 6
10r 1 5r 3 26r 1 6 3r 5 25r 6 1r 1 2r 3 1 49r 6 56r 1 70r 6
5r 1 7r 3 26r 1 1r 6 3r 5 22r 6 2r 1 54r 6 58r 1 81r 3 27r 1
2r 6 4r 5 19r 6 2r 1 54r 6 61r 1 78r 3 29r 1 2r 6 4r 5 16r 6
3r 1 55r 6 62r 1 76r 3 2r 1 3 26r 1 3r 6 4r 5 13r 6 3r 1 57r 6
63r 1 74r 3 2r 1 1r 3 27r 1 3r 6 6r 5 9r 6 3r 1 58r 6 64r 1
71r 3 3r 1 1r 3 29r 1 3r 6 8r 5 5r 6 2r 1 59r 6 66r 1 61r 3
11r 1 2r 3 30r 1 4r 6 13r 1 61r 6 66r 1 61r 3 9r 1 5r 3 30r 1
7r 6 7r 1 63r 6 67r 1 63r 3 4r 1 8r 3 26r 1 2r 3 1 77r 6 68r 1
78r 3 25r 1 3r 3 3r 1 73r 6 69r 1 79r 3 22r 1 4r 3 9r 1 1r 3
1 63r 6 71r 1 79r 3 20r 1 6r 3 11r 1 62r 6 72r 1 81r 3 16r 1
82r 6 74r 1 86r 3 8r 1 83r 6 76r 1 177r 6 79r 1 173r 6 82r 1
170r 6 86r 1 165r 6 92r 1 160r 6 97r 1 155r 6 102r 1 150r 6
107r 1 145r 6 114r 1 137r 6 122r 1 53r 6 9r 1 65r 6 131r 1 43r 6
17r 1 57r 6 142r 1 32r 6 25r 1 48r 6 157r 1 17r 6 35r 1 37r 6
223r 1 22r 6 37063r 2 7r 6 241r 2 21r 6 229r 2 20r 3 5r 2 5r 6
219r 2 22r 3 9r 2 10r 6 208r 2 25r 3 12r 2 14r 6 198r 2 28r 3
12r 2 20r 6 190r 2 30r 3 13r 2 23r 6 184r 2 9r 3 1r 2 22r 3
12r 2 25r 6 179r 2 10r 3 1r 2 10r 6 12r 2 3r 3 8r 2 27r 6 175r 2
10r 3 1r 2 10r 6 19r 2 3r 3 3r 2 15r 3 1r 2 11r 6 171r 2 11r 3
1r 2 8r 6 6r 4 4r 6 7r 1 1r 6 3r 2 20r 3 3r 2 11r 6 167r 2 11r 3
1r 2 9r 6 2r 4 11r 6 3r 1 4r 6 5r 2 19r 3 2r 2 11r 6 164r 2
12r 3 1r 2 8r 6 1r 4 14r 6 2r 1 5r 6 10r 2 6r 6 6r 2 2r 3 2
13r 6 160r 2 13r 3 2 4r 6 5r 4 16r 6 2r 1 5r 6 4r 5 1r 6 10r 5
6r 6 2r 2 16r 6 157r 2 13r 3 2 3r 6 5r 4 18r 6 2r 1 5r 6 2r 5
7r 6 2r 5 12r 6 2r 2 15r 6 154r 2 13r 3 1r 2 2r 6 5r 4 20r 6
2r 1 5r 6 2r 5 25r 6 2r 2 15r 6 151r 2 13r 3 1r 2 1r 6 5r 4
22r 6 2r 1 5r 6 2r 5 27r 6 2r 2 15r 6 147r 2 15r 3 2 1r 6 4r 4
23r 6 2r 1 6r 6 2r 5 29r 6 2r 2 14r 6 144r 2 19r 6 3r 4 25r 6
2r 1 6r 6 2r 5 30r 6 2r 2 15r 6 141r 2 19r 6 2r 4 27r 6 2r 1
6r 6 2r 5 32r 6 1r 2 15r 6 138r 2 20r 6 2r 4 27r 6 2r 1 8r 6
1r 5 33r 6 1r 2 16r 6 134r 2 21r 6 2r 4 28r 6 2r 1 8r 6 2r 5
33r 6 1r 2 16r 6 131r 2 22r 6 2r 4 28r 6 2r 1 9r 6 2r 5 34r 6
1r 2 17r 6 128r 2 22r 6 2r 4 29r 6 2r 1 9r 6 2r 5 34r 6 2r 2
18r 6 127r 2 20r 6 2r 4 29r 6 2r 1 11r 6 2r 5 34r 6 2r 2 19r 6
120r 1 3r 6 2r 2 17r 6 2r 4 29r 6 2r 1 12r 6 2r 5 35r 6 1r 2
21r 6 93r 1 10r 6 11r 1 7r 6 2r 2 14r 6 2r 4 29r 6 2r 1 14r 6
2r 5 34r 6 2r 2 22r 6 89r 1 17r 6 3r 1 13r 6 2r 2 10r 6 2r 4
29r 6 3r 1 15r 6 1r 5 35r 6 2r 2 22r 6 86r 1 38r 6 3r 2 7r 6
3r 4 29r 6 2r 1 16r 6 2r 5 34r 6 2r 2 24r 6 82r 1 42r 6 4r 2
3r 6 3r 4 30r 6 1r 1 18r 6 1r 5 35r 6 2r 2 25r 6 79r 1 44r 6
10r 4 30r 6 1r 1 19r 6 1r 5 36r 6 2r 2 24r 6 78r 1 47r 6 7r 4
30r 6 1r 1 21r 6 1r 5 36r 6 1r 2 23r 6 79r 1 48r 6 5r 4 31r 6
1r 1 21r 6 1r 5 36r 6 2r 2 20r 6 3r 1 1r 6 75r 1 50r 6 3r 4
30r 6 1r 1 22r 6 1r 5 37r 6 1r 2 17r 6 5r 1 3r 6 73r 1 51r 6
2r 4 31r 6 1 24r 6 5 38r 6 1r 2 13r 6 7r 1 6r 6 71r 1 51r 6
2r 4 30r 6 1r 1 24r 6 5 38r 6 1r 2 11r 6 2r 1 14r 6 70r 1 51r 6
2r 4 30r 6 1 25r 6 1r 5 37r 6 1r 2 8r 6 1 20r 6 68r 1 51r 6
2r 4 30r 6 1r 1 26r 6 5 38r 6 2 5r 6 1r 1 23r 6 67r 1 51r 6
2r 4 30r 6 1r 1 27r 6 1r 5 36r 6 1r 2 2r 6 1r 1 25r 6 67r 1
51r 6 2r 4 30r 6 1 30r 6 5 37r 2 6 1r 1 28r 6 65r 1 52r 6 2r 4
30r 6 1 31r 5 37r 6 1r 1 31r 6 63r 1 52r 6 2r 4 30r 6 1 31r 6
5 36r 6 1 33r 6 62r 1 52r 6 1r 4 31r 6 1 32r 6 5 34r 6 1r 1
34r 6 60r 1 53r 6 1r 4 31r 6 1 32r 6 5 34r 6 1r 1 37r 6 57r 1
53r 6 1r 4 31r 6 1r 1 30r 6 5 35r 6 1r 1 40r 6 54r 1 53r 6 1r 4
31r 6 1r 1 31r 6 5 35r 6 1 42r 6 51r 1 53r 6 2r 4 32r 6 1 32r 5
35r 6 1 3 1r 1 40r 6 50r 1 53r 6 2r 4 32r 6 1 32r 6 5 34r 6
1 3 1r 1 41r 6 49r 1 53r 6 2r 4 33r 6 1 31r 6 5 34r 6 1 3 1r 1
42r 6 48r 1 53r 6 2r 4 34r 6 1 30r 6 5 34r 6 1 3 1r 1 42r 6
47r 1 54r 6 2r 4 34r 6 1r 1 29r 6 5 34r 6 1 3 1r 1 43r 6 46r 1
54r 6 2r 4 34r 6 1r 1 28r 6 5 35r 6 1 3 1r 1 43r 6 46r 1 54r 6
2r 4 35r 6 1 28r 6 5 35r 6 1 3 1r 1 43r 6 45r 1 56r 6 1r 4 35r 6
1r 1 26r 6 5 36r 6 1 3 1r 1 44r 6 44r 1 56r 6 1r 4 36r 6 1 26r 5
37r 6 1 3 1r 1 44r 6 44r 1 56r 6 2r 4 35r 6 8r 1 6 1r 1 14r 6
5 37r 6 1 48r 6 42r 1 57r 6 2r 4 35r 6 3r 1 6 9r 1 10r 6 5 37r 6
1r 1 48r 6 42r 1 57r 6 2r 4 35r 6 2r 1 10r 6 2r 1 7r 6 5 38r 6
1r 1 48r 6 42r 1 57r 6 2r 4 35r 6 1r 1 12r 6 1r 1 6r 6 5 39r 6
1 50r 6 41r 1 57r 6 2r 4 35r 6 1r 1 13r 6 1r 1 4r 5 40r 6 1r 1
50r 6 41r 1 58r 6 1r 4 34r 6 1r 1 15r 6 1 2r 5 42r 6 1 51r 6
40r 1 59r 6 2r 4 33r 6 1r 1 15r 6 1r 5 44r 6 1 51r 6 40r 1 59r 6
2r 4 33r 6 1r 1 15r 6 1r 5 44r 6 1 52r 6 39r 1 59r 6 2r 4 33r 6
1r 1 15r 6 5 44r 6 1r 1 52r 6 39r 1 60r 6 1r 4 33r 6 1 7r 3
2r 1 5r 6 5 44r 6 1 53r 6 39r 1 57r 3 1r 1 6 2r 4 32r 6 1 6r 3
4r 1 5r 5 44r 6 1 53r 6 39r 1 57r 3 1r 1 1r 6 1r 4 31r 6 1r 1
5r 3 6r 1 4r 5 43r 6 1r 1 53r 6 39r 1 58r 3 1r 1 6 1r 4 31r 6
1r 1 4r 3 8r 1 3r 6 5 42r 6 1 55r 6 38r 1 58r 3 1r 1 1r 6 1r 4
30r 6 1r 1 3r 3 9r 1 3r 6 5 42r 6 1 55r 6 38r 1 59r 3 1r 1 6
2r 4 29r 6 1 2r 3 12r 1 2r 6 5 41r 6 1r 1 55r 6 38r 1 60r 3

1 6 2r 4 28r 6 1r 1 1r 3 13r 1 2r 6 5 41r 6 1 56r 6 38r 1 63r 6
2r 4 27r 6 1r 1 1r 3 14r 1 1r 6 1r 5 39r 6 1r 1 55r 6 39r 1
63r 6 3r 4 25r 6 1r 1 2r 3 15r 1 1r 6 5 39r 6 1 56r 6 39r 1
63r 6 3r 4 24r 6 1r 1 2r 3 16r 1 1r 6 5 38r 6 1r 1 55r 6 40r 1
64r 6 3r 4 23r 6 1r 1 2r 3 16r 1 1r 6 5 37r 6 1r 1 55r 6 41r 1
65r 6 2r 4 22r 6 1r 1 3 1 1r 3 16r 1 1r 6 1r 5 36r 6 1r 1 53r 6
43r 1 66r 6 3r 4 19r 6 1r 1 1r 3 1r 1 3 16r 1 1r 6 1r 5 35r 6
1r 1 2r 3 1 49r 6 44r 1 67r 6 2r 4 18r 6 1r 1 1r 3 21r 1 1r 6
1r 5 33r 6 1r 1 2r 3 1r 1 49r 6 45r 1 67r 6 2r 4 16r 6 1r 1
4r 3 19r 1 1r 6 1r 5 32r 6 1r 1 1r 3 2r 1 49r 6 46r 1 68r 6
3r 4 12r 6 2r 1 5r 3 19r 1 1r 6 2r 5 30r 6 1r 1 1r 3 3r 1 48r 6
48r 1 68r 6 4r 4 8r 6 3r 1 5r 3 20r 1 2r 6 2r 5 28r 6 1r 1 1r 3
3r 1 49r 6 49r 1 64r 3 1r 1 2r 6 5r 4 2r 6 5r 1 5r 3 23r 1 6
3r 5 26r 6 1r 1 1r 3 3r 1 50r 6 50r 1 62r 3 4r 1 2r 6 11r 1
5r 3 25r 1 6 2r 5 25r 6 1r 1 1r 3 3r 1 50r 6 52r 1 62r 3 4r 1
3r 6 7r 1 6r 3 26r 1 1r 6 2r 5 23r 6 1r 1 2r 3 2r 1 51r 6 53r 1
85r 3 27r 1 6 3r 5 20r 6 2r 1 3r 3 1r 1 52r 6 55r 1 82r 3 28r 1
1r 6 4r 5 17r 6 2r 1 3r 3 1 53r 6 57r 1 81r 3 28r 1 3r 6 3r 5
14r 6 3r 1 59r 6 59r 1 77r 3 1 3 28r 1 4r 6 3r 5 12r 6 3r 1
60r 6 60r 1 74r 3 2r 1 1r 3 28r 1 4r 6 7r 5 5r 6 3r 1 61r 6
62r 1 71r 3 3r 1 2r 3 28r 1 5r 6 7r 5 1r 6 4r 1 63r 6 63r 1
66r 3 6r 1 4r 3 27r 1 9r 6 8r 1 64r 6 65r 1 65r 3 4r 1 7r 3
26r 1 83r 6 65r 1 79r 3 25r 1 82r 6 67r 1 79r 3 23r 1 82r 6
68r 1 80r 3 21r 1 6r 3 1 74r 6 70r 1 81r 3 18r 1 7r 3 1 74r 6
71r 1 86r 3 10r 1 84r 6 73r 1 92r 3 1 85r 6 76r 1 176r 6 79r 1
173r 6 83r 1 170r 6 86r 1 165r 6 92r 1 160r 6 97r 1 155r 6 102r 1
150r 6 108r 1 143r 6 116r 1 61r 6 2r 1 71r 6 123r 1 51r 6 11r 1
63r 6 133r 1 41r 6 19r 1 56r 6 144r 1 30r 6 26r 1 47r 6 159r 1
14r 6 37r 1 35r 6 227r 1 15r 6 37322r 2 9r 6 239r 2 24r 6 227r 2
20r 3 5r 2 8r 6 216r 2 22r 3 9r 2 13r 6 205r 2 25r 3 11r 2 17r 6
196r 2 27r 3 13r 2 21r 6 189r 2 27r 3 16r 2 23r 6 184r 2 9r 3
2 24r 3 11r 2 25r 6 179r 2 10r 3 1r 2 10r 6 14r 2 2r 3 8r 2
14r 3 2 10r 6 175r 2 10r 3 1r 2 10r 6 20r 2 3r 3 3r 2 13r 3
3r 2 10r 6 171r 2 11r 3 1r 2 8r 6 17r 1 3r 6 4r 2 19r 3 4r 2
10r 6 167r 2 11r 3 2r 2 8r 6 6r 4 3r 6 6r 1 5r 6 5r 2 19r 3
3r 2 11r 6 163r 2 12r 3 2r 2 7r 6 6r 4 6r 6 5r 1 5r 6 8r 2 7r 6
7r 2 2r 3 2r 2 11r 6 160r 2 13r 3 2 5r 6 6r 4 12r 6 3r 1 6r 6
16r 5 7r 6 2r 2 1r 3 1r 2 12r 6 157r 2 13r 3 2 4r 6 6r 4 14r 6
3r 1 6r 6 3r 5 3r 6 2r 5 16r 6 1r 2 16r 6 153r 2 13r 3 1r 2
3r 6 6r 4 16r 6 3r 1 6r 6 2r 5 6r 6 5 17r 6 2r 2 15r 6 151r 2
13r 3 1r 2 2r 6 5r 4 19r 6 3r 1 6r 6 2r 5 27r 6 1r 2 16r 6 147r 2
14r 3 1r 2 2r 6 4r 4 21r 6 3r 1 6r 6 2r 5 27r 6 3r 2 15r 6 144r 2
15r 3 1r 2 2r 6 3r 4 23r 6 3r 1 6r 6 2r 5 29r 6 3r 2 15r 6 140r 2
16r 3 1r 2 2r 6 2r 4 25r 6 2r 1 7r 6 2r 5 30r 6 3r 2 15r 6 137r 2
17r 3 1r 2 2r 6 2r 4 26r 6 2r 1 7r 6 2r 5 32r 6 2r 2 16r 6 133r 2
18r 3 1r 2 2r 6 1r 4 27r 6 2r 1 8r 6 2r 5 33r 6 2r 2 17r 6 130r 2
18r 3 1r 2 3r 6 4 27r 6 3r 1 9r 6 1r 5 34r 6 2r 2 17r 6 130r 2
17r 3 2 2r 6 1r 4 28r 6 2r 1 10r 6 1r 5 35r 6 1r 2 19r 6 97r 1
8r 6 16r 1 4r 6 1r 2 14r 3 2 2r 6 2r 4 27r 6 2r 1 12r 6 1r 5
35r 6 1r 2 20r 6 92r 1 15r 6 9r 1 8r 6 2r 2 11r 3 2 2r 6 1r 4
28r 6 3r 1 12r 6 1r 5 36r 6 1r 2 22r 6 87r 1 38r 6 2r 2 9r 3
2 2r 6 4 29r 6 2r 1 14r 6 1r 5 35r 6 2r 2 23r 6 84r 1 41r 6
3r 2 9r 6 1r 4 28r 6 2r 1 15r 6 1r 5 36r 6 1r 2 24r 6 82r 1
44r 6 3r 2 6r 6 1r 4 29r 6 1r 1 17r 6 1r 5 36r 6 1r 2 25r 6
79r 1 48r 6 2r 2 2r 6 2r 4 29r 6 2r 1 17r 6 1r 5 37r 6 1r 2
24r 6 79r 1 50r 6 6r 4 28r 6 2r 1 19r 6 1r 5 37r 6 2 23r 6 79r 1
53r 6 3r 4 29r 6 1r 1 20r 6 2r 5 36r 6 1r 2 20r 6 4r 1 1r 6
74r 1 53r 6 2r 4 29r 6 2r 1 21r 6 1r 5 37r 6 2 17r 6 6r 1 3r 6
73r 1 52r 6 3r 4 29r 6 1r 1 22r 6 1r 5 37r 6 1r 2 13r 6 5r 1
6 1 7r 6 70r 1 53r 6 3r 4 28r 6 1r 1 23r 6 1r 5 38r 6 2 10r 6
4r 1 14r 6 69r 1 53r 6 2r 4 29r 6 1r 1 23r 6 5 39r 6 2 8r 6
3r 1 18r 6 68r 1 53r 6 2r 4 28r 6 2r 1 24r 6 5 39r 6 2 4r 6
3r 1 22r 6 66r 1 53r 6 3r 4 28r 6 1r 1 25r 6 1r 5 38r 6 1r 2
6 3r 1 27r 6 64r 1 53r 6 3r 4 28r 6 1r 1 27r 6 5 37r 6 3r 1
38r 6 56r 1 53r 6 3r 4 28r 6 1r 1 28r 6 5 37r 6 1r 1 42r 6 52r 1
54r 6 2r 4 29r 6 1r 1 29r 6 5 36r 6 1 44r 6 51r 1 54r 6 2r 4
29r 6 1r 1 30r 6 5 35r 6 1 45r 6 50r 1 54r 6 2r 4 30r 6 1 30r 6
5 35r 6 1 45r 6 49r 1 54r 6 3r 4 30r 6 1 30r 6 5 35r 6 1 46r 6
48r 1 54r 6 3r 4 30r 6 1r 1 29r 6 5 35r 6 1 46r 6 48r 1 54r 6
3r 4 31r 6 1 29r 6 5 35r 6 1 47r 6 47r 1 54r 6 3r 4 31r 6 1
29r 6 5 35r 6 1r 1 46r 6 46r 1 55r 6 2r 4 33r 6 1 28r 6 5 35r 6
1r 1 47r 6 45r 1 55r 6 2r 4 33r 6 1r 1 27r 6 1r 5 34r 6 1r 1
3 1 45r 6 45r 1 55r 6 2r 4 34r 6 1 27r 6 5 35r 6 1r 1 3 1 46r 6
43r 1 56r 6 2r 4 34r 6 1r 1 26r 6 5 35r 6 1 1r 3 1 46r 6 43r 1
56r 6 2r 4 34r 6 1r 1 26r 6 5 35r 6 1 3 1r 1 46r 6 43r 1 56r 6
2r 4 35r 6 1 26r 5 36r 6 1 3 1r 1 47r 6 41r 1 57r 6 2r 4 35r 6
1 1r 6 3r 1 19r 5 37r 6 1 3 1r 1 47r 6 41r 1 57r 6 2r 4 35r 6
14r 1 10r 6 5 37r 6 1 3 1r 1 47r 6 41r 1 57r 6 3r 4 34r 6 2r 1
4r 6 7r 1 9r 5 37r 6 1r 1 3 1r 1 48r 6 39r 1 59r 6 2r 4 34r 6
1r 1 12r 6 1r 1 7r 5 38r 6 1 1r 3 1r 1 48r 6 39r 1 59r 6 2r 4
34r 6 1r 1 13r 6 1 6r 5 39r 6 1 1r 3 1 49r 6 39r 1 59r 6 2r 4
34r 6 1 15r 6 1 3r 6 5 40r 6 1 1r 3 1 49r 6 39r 1 59r 6 2r 4
33r 6 1r 1 15r 6 1 2r 5 41r 6 1r 1 3 1 50r 6 39r 1 59r 6 3r 4
32r 6 1r 1 15r 6 3r 5 41r 6 1 1r 3 1 50r 6 39r 1 60r 6 2r 4
32r 6 1r 1 15r 6 2r 5 42r 6 1 54r 6 38r 1 60r 6 2r 4 31r 6 1r 1
8r 3 1r 1 5r 6 1r 5 43r 6 1 54r 6 38r 1 60r 6 2r 4 31r 6 1r 1
6r 3 4r 1 5r 5 43r 6 1r 1 54r 6 38r 1 61r 6 1r 4 31r 6 1r 1
5r 3 6r 1 4r 6 5 42r 6 1 55r 6 38r 1 58r 3 1 1r 6 2r 4 29r 6
2r 1 4r 3 8r 1 3r 6 5 42r 6 1 56r 6 36r 1 59r 3 1r 1 1r 6 1r 4
29r 6 2r 1 3r 3 9r 1 3r 6 5 42r 6 1 56r 6 36r 1 60r 3 1r 1 6
2r 4 28r 6 1r 1 3r 3 11r 1 2r 6 5 41r 6 1 57r 6 36r 1 60r 3
2r 1 6 1r 4 27r 6 2r 1 2r 3 12r 1 2r 6 5 41r 6 1 57r 6 36r 1
61r 3 1r 1 6 1r 4 27r 6 2r 1 1r 3 14r 1 1r 6 5 40r 6 1r 1 57r 6
36r 1 62r 3 1r 6 2r 4 25r 6 3r 1 1r 3 14r 1 2r 5 40r 6 1 58r 6
36r 1 63r 3 1 6 2r 4 24r 6 1r 1 3r 3 15r 1 1r 6 5 38r 6 1r 1
58r 6 36r 1 65r 6 3r 4 22r 6 2r 1 3r 3 15r 1 1r 6 5 37r 6 1r 1
59r 6 36r 1 66r 6 3r 4 20r 6 2r 1 3 1 2r 3 14r 1 2r 6 5 37r 6
1 60r 6 37r 1 66r 6 3r 4 17r 6 3r 1 3 1r 1 1r 3 15r 1 2r 6 1r 5
35r 6 1r 1 59r 6 38r 1 67r 6 3r 4 16r 6 2r 1 1r 3 2r 1 3 15r 1
3r 6 5 34r 6 1r 1 59r 6 39r 1 68r 6 3r 4 14r 6 2r 1 1r 3 2r 1
1r 3 17r 1 1r 6 5 33r 6 1r 1 60r 6 39r 1 69r 6 4r 4 11r 6 2r 1
2r 3 1 2r 3 18r 1 1r 6 1r 5 31r 6 1r 1 60r 6 41r 1 69r 6 5r 4
6r 6 4r 1 6r 3 19r 1 2r 6 1r 5 29r 6 1r 1 3r 3 1 55r 6 42r 1
71r 6 14r 1 6r 3 20r 1 2r 6 1r 5 28r 6 1r 1 2r 3 2r 1 53r 6
45r 1 72r 6 11r 1 6r 3 21r 1 3r 6 1r 5 26r 6 1r 1 1r 3 3r 1
54r 6 46r 1 66r 3 2r 1 4r 6 6r 1 8r 3 21r 1 3r 6 2r 5 24r 6
1r 1 1r 3 3r 1 54r 6 48r 1 65r 3 5r 1 16r 3 23r 1 3r 6 2r 5
22r 6 1r 1 1r 3 4r 1 53r 6 50r 1 67r 3 2r 1 15r 3 26r 1 2r 6
3r 5 18r 6 2r 1 2r 3 3r 1 53r 6 52r 1 84r 3 28r 1 2r 6 3r 5
16r 6 2r 1 2r 3 2r 1 55r 6 54r 1 82r 3 28r 1 3r 6 4r 5 13r 6
1r 1 3r 3 2r 1 55r 6 56r 1 81r 3 28r 1 5r 6 6r 5 5r 6 4r 1 3r 3
1r 1 57r 6 57r 1 81r 3 27r 1 6r 6 14r 1 64r 6 60r 1 79r 3 28r 1
8r 6 9r 1 66r 6 61r 1 79r 3 27r 1 84r 6 63r 1 80r 3 25r 1 83r 6
64r 1 81r 3 24r 1 82r 6 66r 1 81r 3 21r 1 84r 6 67r 1 82r 3
18r 1 84r 6 68r 1 84r 3 15r 1 84r 6 70r 1 88r 3 7r 1 86r 6 72r 1
180r 6 76r 1 176r 6 79r 1 173r 6 83r 1 169r 6 87r 1 165r 6 92r 1
160r 6 97r 1 155r 6 103r 1 149r 6 109r 1 142r 6 117r 1 58r 6
5r 1 69r 6 124r 1 50r 6 13r 1 62r 6 134r 1 40r 6 20r 1 54r 6
148r 1 26r 6 28r 1 45r 6 164r 1 6r 6 42r 1 34r 6 236r 1 3r 6
37581r 2 13r 6 236r 2 23r 6 227r 2 23r 3 2r 2 10r 6 214r 2 22r 3
9r 2 14r 6 204r 2 24r 3 12r 2 18r 6 196r 2 25r 3 14r 2 22r 6
189r 2 25r 3 18r 2 23r 6 183r 2 26r 6 2 8r 3 10r 2 25r 6 179r 2
24r 6 13r 2 3r 3 1r 2 3 4r 2 13r 3 2r 2 9r 6 175r 2 24r 6 19r 2
4r 3 3r 2 12r 3 3r 2 10r 6 171r 2 11r 3 2 10r 6 16r 1 3r 6 4r 2
20r 3 3r 2 10r 6 167r 2 12r 3 1r 2 8r 6 16r 1 6r 6 5r 2 20r 3
2r 2 11r 6 163r 2 24r 6 7r 4 6 7r 1 7r 6 8r 2 7r 6 7r 2 3r 3
1r 2 12r 6 160r 2 22r 6 7r 4 5r 6 5r 1 7r 6 16r 5 6r 6 4r 2
1r 3 2 12r 6 157r 2 14r 3 2 4r 6 9r 4 8r 6 4r 1 7r 6 3r 5 2r 6
5r 5 14r 6 1r 2 1r 3 2 13r 6 153r 2 15r 3 1r 2 2r 6 8r 4 12r 6
3r 1 7r 6 2r 5 26r 6 1r 2 15r 6 151r 2 15r 3 2 2r 6 6r 4 16r 6
3r 1 6r 6 3r 5 27r 6 1r 2 16r 6 147r 2 15r 3 1r 2 2r 6 3r 4
20r 6 3r 1 6r 6 3r 5 28r 6 1r 2 17r 6 143r 2 16r 3 1r 2 2r 6
2r 4 22r 6 3r 1 6r 6 3r 5 30r 6 1r 2 16r 6 140r 2 17r 3 1r 2
2r 6 2r 4 23r 6 3r 1 7r 6 2r 5 31r 6 1r 2 17r 6 136r 2 17r 3
2r 2 2r 6 1r 4 24r 6 3r 1 8r 6 2r 5 32r 6 1r 2 17r 6 134r 2
17r 3 2r 2 2r 6 1r 4 25r 6 3r 1 8r 6 2r 5 33r 6 1r 2 18r 6 101r 1
3r 6 26r 2 16r 3 2r 2 2r 6 1r 4 26r 6 2r 1 10r 6 1r 5 33r 6
2r 2 19r 6 95r 1 13r 6 14r 1 4r 6 2r 2 13r 3 2r 2 2r 6 1r 4
26r 6 2r 1 11r 6 2r 5 33r 6 2r 2 20r 6 91r 1 20r 6 6r 1 8r 6
4r 2 9r 3 3r 2 1r 6 1r 4 26r 6 3r 1 12r 6 1r 5 34r 6 2r 2 22r 6
86r 1 40r 6 4r 2 7r 3 2r 2 2r 4 28r 6 2r 1 13r 6 2r 5 34r 6
2r 2 23r 6 84r 1 44r 6 2r 2 4r 3 2r 2 1r 6 1r 4 27r 6 2r 1 15r 6
1r 5 35r 6 1r 2 25r 6 81r 1 48r 6 1r 2 2r 3 1r 2 1r 6 1r 4 28r 6
2r 1 15r 6 1r 5 35r 6 2r 2 25r 6 79r 1 52r 6 2 2r 6 2r 4 28r 6
2r 1 17r 6 1r 5 35r 6 2r 2 25r 6 78r 1 53r 6 1r 2 6 2r 4 28r 6
2r 1 18r 6 5 36r 6 1r 2 23r 6 80r 1 55r 6 2r 4 28r 6 2r 1 19r 6
5 37r 6 1r 2 19r 6 5r 1 2r 6 73r 1 56r 6 2r 4 28r 6 1r 1 20r 6
5 37r 6 1r 2 17r 6 6r 1 4r 6 72r 1 55r 6 2r 4 28r 6 2r 1 20r 6
1r 5 37r 6 1r 2 13r 6 5r 1 10r 6 70r 1 55r 6 2r 4 28r 6 1r 1
21r 6 1r 5 38r 6 2 11r 6 1r 1 17r 6 68r 1 56r 6 1r 4 28r 6 2r 1
22r 6 5 38r 6 1r 2 7r 6 1r 1 22r 6 66r 1 56r 6 1r 4 28r 6 1r 1
23r 6 5 39r 6 2 5r 6 2r 1 25r 6 64r 1 56r 6 1r 4 27r 6 2r 1
23r 6 5 39r 6 7r 1 36r 6 54r 1 56r 6 2r 4 27r 6 2r 1 24r 6 1r 5
37r 6 5r 1 40r 6 52r 1 56r 6 1r 4 28r 6 2r 1 25r 6 1r 5 37r 6
1r 1 45r 6 50r 1 55r 6 2r 4 28r 6 2r 1 27r 6 5 36r 6 1 47r 6
48r 1 56r 6 2r 4 29r 6 1r 1 27r 6 5 36r 6 1 47r 6 48r 1 56r 6
2r 4 29r 6 1r 1 27r 6 1r 5 35r 6 1 48r 6 47r 1 55r 6 3r 4 29r 6
1r 1 28r 6 5 35r 6 1 48r 6 47r 1 55r 6 2r 4 31r 6 1 28r 6 5
35r 6 1 49r 6 45r 1 56r 6 2r 4 31r 6 1 28r 6 5 36r 6 1 48r 6
45r 1 56r 6 2r 4 31r 6 1r 1 27r 6 5 36r 6 1 49r 6 44r 1 56r 6
2r 4 32r 6 1 27r 6 5 36r 6 1 49r 6 43r 1 57r 6 2r 4 32r 6 1r 1
26r 6 5 36r 6 1 49r 6 43r 1 57r 6 2r 4 32r 6 2r 1 25r 6 5 36r 6
1 50r 6 41r 1 58r 6 2r 4 32r 6 2r 1 25r 6 5 35r 6 1r 1 50r 6
41r 1 58r 6 2r 4 33r 6 1r 1 25r 6 5 35r 6 1r 1 50r 6 41r 1 58r 6
2r 4 33r 6 1r 1 25r 6 5 35r 6 1r 1 1r 3 1 48r 6 40r 1 58r 6
2r 4 33r 6 8r 1 17r 6 5 36r 6 1 1r 3 1r 1 48r 6 39r 1 59r 6
2r 4 33r 6 3r 1 1r 6 10r 1 9r 5 37r 6 1 1r 3 1r 1 48r 6 39r 1
59r 6 3r 4 32r 6 3r 1 9r 6 3r 1 7r 5 38r 6 1 3 2r 1 48r 6 39r 1
59r 6 3r 4 32r 6 2r 1 12r 6 1r 1 5r 6 5 38r 6 1r 1 3 2r 1 49r 6
38r 1 59r 6 3r 4 32r 6 2r 1 13r 6 1 5r 6 5 38r 6 1 1r 3 1r 1
50r 6 38r 1 60r 6 2r 4 31r 6 2r 1 15r 6 1 3r 5 40r 6 1 3 2r 1
50r 6 37r 1 61r 6 2r 4 31r 6 2r 1 15r 6 4r 5 40r 6 1 3 2r 1
50r 6 37r 1 61r 6 2r 4 31r 6 2r 1 15r 6 2r 5 42r 6 1 3 1r 1
51r 6 37r 1 61r 6 2r 4 31r 6 1r 1 16r 6 1r 5 42r 6 1 1r 3 1r 1
52r 6 36r 1 62r 6 1r 4 31r 6 1r 1 6r 3 4r 1 4r 6 1r 5 42r 6
1 1r 3 1 53r 6 36r 1 62r 6 1r 4 30r 6 2r 1 5r 3 6r 1 4r 6 5
42r 6 1 3 1r 1 53r 6 36r 1 62r 6 2r 4 29r 6 2r 1 4r 3 7r 1 4r 6
5 42r 6 1 3 1 54r 6 36r 1 63r 6 1r 4 28r 6 3r 1 3r 3 9r 1 3r 6
5 41r 6 1 57r 6 36r 1 63r 6 2r 4 27r 6 2r 1 3r 3 11r 1 2r 6
5 41r 6 1 58r 6 35r 1 61r 3 1 1r 6 1r 4 26r 6 3r 1 2r 3 12r 1
2r 6 1r 5 39r 6 1r 1 58r 6 35r 1 61r 3 1r 1 6 2r 4 25r 6 3r 1
2r 3 13r 1 1r 6 1r 5 39r 6 1 59r 6 35r 1 61r 3 2r 1 6 1r 4 25r 6
3r 1 1r 3 14r 1 1r 6 1r 5 39r 6 1 59r 6 35r 1 62r 3 1r 1 6 2r 4
23r 6 3r 1 2r 3 15r 1 1r 6 5 38r 6 1 60r 6 35r 1 63r 3 1r 1
6 1r 4 22r 6 3r 1 3r 3 15r 1 1r 6 1r 5 36r 6 1r 1 60r 6 35r 1
66r 6 2r 4 20r 6 3r 1 3 1 2r 3 15r 1 1r 6 1r 5 36r 6 1 61r 6
35r 1 67r 6 2r 4 18r 6 3r 1 1r 3 1 2r 3 14r 1 2r 6 1r 5 35r 6
1r 1 61r 6 35r 1 68r 6 1r 4 17r 6 3r 1 1r 3 1r 1 2r 3 14r 1
3r 6 1r 5 33r 6 1r 1 62r 6 35r 1 69r 6 2r 4 14r 6 3r 1 1r 3
2r 1 1r 3 15r 1 1r 3 1 6 1r 5 32r 6 1r 1 62r 6 36r 1 70r 6 3r 4
9r 6 5r 1 1r 3 3r 1 1r 3 14r 1 1r 3 1r 1 6 1r 5 32r 6 1 63r 6
37r 1 70r 6 3r 4 6r 6 6r 1 1r 3 2r 1 2r 3 19r 1 6 2r 5 30r 6
1r 1 62r 6 38r 1 72r 6 14r 1 1r 3 1r 1 4r 3 19r 1 1r 6 1r 5
29r 6 1r 1 62r 6 40r 1 72r 6 12r 1 1r 3 1 5r 3 20r 1 1r 6 3r 5
26r 6 1r 1 62r 6 41r 1 75r 6 7r 1 9r 3 20r 1 3r 6 2r 5 25r 6
1r 1 62r 6 43r 1 83r 3 1r 1 5r 3 21r 1 4r 6 2r 5 22r 6 1r 1
2r 3 2r 1 57r 6 45r 1 68r 3 6r 1 6r 3 1 5r 3 22r 1 5r 6 2r 5
19r 6 2r 1 1r 3 4r 1 56r 6 47r 1 69r 3 3r 1 13r 3 24r 1 5r 6
3r 5 17r 6 1r 1 1r 3 4r 1 56r 6 49r 1 86r 3 25r 1 5r 6 3r 5
14r 6 1r 1 2r 3 4r 1 56r 6 51r 1 85r 3 26r 1 5r 6 4r 5 11r 6
1r 1 2r 3 3r 1 58r 6 52r 1 84r 3 26r 1 6r 6 5r 5 7r 6 1r 1 4r 3
2r 1 58r 6 54r 1 83r 3 27r 1 7r 6 11r 1 4r 3 2r 1 59r 6 57r 1
82r 3 27r 1 11r 6 4r 1 6r 3 1 61r 6 58r 1 82r 3 26r 1 85r 6
60r 1 82r 3 25r 1 84r 6 62r 1 82r 3 23r 1 84r 6 64r 1 83r 3
19r 1 85r 6 66r 1 84r 3 16r 1 85r 6 68r 1 86r 3 11r 1 86r 6
69r 1 91r 3 3r 1 88r 6 72r 1 180r 6 75r 1 177r 6 79r 1 173r 6
83r 1 170r 6 86r 1 165r 6 92r 1 160r 6 97r 1 155r 6 103r 1 149r 6
109r 1 142r 6 117r 1 57r 6 7r 1 68r 6 125r 1 49r 6 14r 1 61r 6
135r 1 38r 6 22r 1 53r 6 150r 1 23r 6 30r 1 44r 6 215r 1 33r 6
38081r 2 8r 6 239r 2 23r 6 227r 2 23r 3 1r 2 11r 6 214r 2 21r 3
10r 2 13r 6 205r 2 22r 3 12r 2 19r 6 196r 2 23r 3 16r 2 22r 6
189r 2 26r 3 17r 2 23r 6 184r 2 35r 3 11r 2 24r 6 179r 2 27r 6
9r 2 4r 3 1r 2 1r 3 4r 2 13r 3 2 10r 6 175r 2 27r 6 15r 2 4r 3
5r 2 13r 3 1r 2 10r 6 171r 2 27r 6 10r 1 4r 6 4r 2 22r 3 2r 2
10r 6 167r 2 25r 6 13r 1 6r 6 5r 2 22r 3 1r 2 11r 6 164r 2 24r 6
14r 1 8r 6 7r 2 9r 6 5r 2 5r 3 2 12r 6 160r 2 25r 6 15r 1 8r 6

9r 2 4r 6 13r 2 15r 6 157r 2 23r 6 6r 4 5r 6 5r 1 9r 6 3r 5
6 10r 5 5r 6 7r 2 16r 6 154r 2 21r 6 7r 4 8r 6 4r 1 9r 6 2r 5
4r 6 4r 5 11r 6 5r 2 17r 6 150r 2 21r 6 6r 4 12r 6 3r 1 9r 6
2r 5 22r 6 5 6 4r 2 16r 6 147r 2 21r 6 6r 4 14r 6 4r 1 8r 6
2r 5 26r 6 3r 2 17r 6 143r 2 16r 3 2 4r 6 6r 4 15r 6 4r 1 8r 6
2r 5 28r 6 2r 2 17r 6 140r 2 17r 3 1r 2 3r 6 3r 4 19r 6 4r 1
8r 6 2r 5 29r 6 3r 2 17r 6 136r 2 18r 3 1r 2 3r 6 2r 4 21r 6
4r 1 8r 6 2r 5 30r 6 3r 2 18r 6 100r 1 8r 6 21r 1 6 2r 2 16r 3
2r 2 2r 6 1r 4 23r 6 2r 1 11r 6 1r 5 31r 6 3r 2 19r 6 94r 1
16r 6 15r 1 4r 6 2r 2 12r 3 3r 2 2r 6 4 25r 6 2r 1 11r 6 1r 5
33r 6 1r 2 21r 6 91r 1 23r 6 5r 1 11r 6 1r 2 9r 3 3r 2 1r 6
2r 4 24r 6 2r 1 13r 6 1r 5 33r 6 1r 2 22r 6 88r 1 44r 6 2r 2
6r 3 2r 2 1r 6 1r 4 26r 6 2r 1 13r 6 1r 5 34r 6 1r 2 24r 6 84r 1
48r 6 1r 2 3r 3 3r 2 6 2r 4 25r 6 2r 1 15r 6 5 35r 6 1r 2 25r 6
81r 1 51r 6 1r 2 1r 3 2r 2 1r 6 1r 4 26r 6 2r 1 15r 6 1r 5 35r 6
1r 2 25r 6 80r 1 53r 6 2r 2 2r 6 1r 4 27r 6 2r 1 15r 6 1r 5
35r 6 2r 2 24r 6 79r 1 56r 6 4r 4 27r 6 2r 1 17r 6 5 36r 6 1r 2
23r 6 80r 1 55r 3 1 1r 6 1r 4 28r 6 2r 1 17r 6 1r 5 36r 6 1r 2
19r 6 5r 1 2r 6 74r 1 54r 3 1r 1 2r 6 4 27r 6 2r 1 19r 6 5 37r 6
1r 2 16r 6 6r 1 5r 6 71r 1 55r 3 1r 1 1r 6 4 28r 6 3r 1 18r 6
5 37r 6 1r 2 14r 6 4r 1 11r 6 69r 1 55r 3 1 2r 6 4 27r 6 2r 1
1r 6 2r 1 15r 6 1r 5 37r 6 1r 2 10r 6 3r 1 17r 6 67r 1 55r 3
1 1r 6 1r 4 27r 6 1r 1 5r 6 3r 1 11r 6 1r 5 37r 6 1r 2 6r 6
3r 1 23r 6 64r 1 59r 6 4 27r 6 2r 1 7r 6 4r 1 8r 6 1r 5 38r 6
2r 2 6 4r 1 36r 6 54r 1 58r 6 4 28r 6 2r 1 9r 6 7r 1 4r 6 5
39r 6 5r 1 40r 6 52r 1 58r 6 4 28r 6 1r 1 14r 6 4r 1 3r 6 5
39r 6 1r 1 46r 6 49r 1 58r 6 1r 4 28r 6 1r 1 16r 6 3r 1 3r 5
39r 6 1 48r 6 48r 1 58r 6 1r 4 28r 6 1r 1 24r 6 1r 5 37r 6 1
49r 6 47r 1 57r 6 1r 4 29r 6 2r 1 23r 6 1r 5 37r 6 1 49r 6 46r 1
58r 6 1r 4 29r 6 1r 1 25r 6 1r 5 37r 6 1 49r 6 45r 1 58r 6 1r 4
30r 6 1 26r 6 5 37r 6 1 49r 6 45r 1 58r 6 1r 4 30r 6 1r 1 25r 6
5 37r 6 1 50r 6 44r 1 57r 6 2r 4 30r 6 1r 1 25r 6 5 37r 6 1
50r 6 43r 1 58r 6 2r 4 30r 6 1r 1 25r 6 1r 5 36r 6 1 50r 6 43r 1
58r 6 2r 4 31r 6 1 25r 6 1r 5 36r 6 1 51r 6 42r 1 58r 6 2r 4
31r 6 1r 1 24r 6 5 37r 6 1 51r 6 41r 1 59r 6 2r 4 32r 6 1r 1
23r 6 5 37r 6 1 51r 6 41r 1 59r 6 2r 4 32r 6 1r 1 23r 6 5 37r 6
1 52r 6 40r 1 59r 6 2r 4 32r 6 1r 1 23r 6 5 37r 6 1 52r 6 39r 1
60r 6 2r 4 32r 6 1r 1 23r 6 5 37r 6 1 52r 6 39r 1 60r 6 2r 4
32r 6 9r 1 6 2r 1 11r 6 5 37r 6 1 53r 6 38r 1 60r 6 2r 4 32r 6
3r 1 3r 6 8r 1 8r 6 5 36r 6 1r 1 53r 6 37r 1 61r 6 2r 4 32r 6
2r 1 11r 6 2r 1 5r 6 1r 5 37r 6 1r 1 53r 6 37r 1 61r 6 2r 4
32r 6 2r 1 13r 6 1 5r 6 5 38r 6 1 2r 3 1 50r 6 37r 1 61r 6 2r 4
32r 6 2r 1 14r 6 1 4r 5 39r 6 1 1r 3 1r 1 50r 6 37r 1 61r 6
2r 4 32r 6 1r 1 15r 6 1 2r 6 5 39r 6 1 1r 3 2r 1 51r 6 36r 1
62r 6 1r 4 31r 6 2r 1 15r 6 3r 5 40r 6 1 1r 3 1r 1 52r 6 36r 1
62r 6 1r 4 31r 6 2r 1 15r 6 2r 5 41r 6 1 3 2r 1 52r 6 36r 1
62r 6 2r 4 30r 6 1r 1 7r 3 2r 1 5r 6 1r 5 42r 6 1 3 2r 1 52r 6
36r 1 63r 6 1r 4 30r 6 1r 1 6r 3 4r 1 5r 5 42r 6 1r 1 3 1r 1
53r 6 36r 1 63r 6 1r 4 30r 6 1r 1 5r 3 6r 1 4r 5 42r 6 1r 1 3
1r 1 54r 6 35r 1 63r 6 1r 4 29r 6 2r 1 4r 3 8r 1 3r 5 42r 6
1 3 1r 1 55r 6 35r 1 64r 6 1r 4 28r 6 1r 1 4r 3 9r 1 3r 5 42r 6
1 3 1r 1 55r 6 35r 1 64r 6 1r 4 27r 6 2r 1 3r 3 11r 1 2r 6 5
40r 6 1 1r 3 1 56r 6 35r 1 64r 6 1r 4 27r 6 2r 1 2r 3 13r 1
1r 6 5 40r 6 1 59r 6 35r 1 65r 6 1r 4 25r 6 2r 1 2r 3 14r 1
1r 6 5 39r 6 1r 1 60r 6 34r 1 62r 3 1r 1 6 2r 4 24r 6 2r 1 2r 3
15r 1 1r 5 39r 6 1 61r 6 34r 1 63r 3 1r 1 6 2r 4 22r 6 3r 1
1r 3 16r 1 1r 6 5 37r 6 1r 1 61r 6 34r 1 63r 3 1r 1 1r 6 1r 4
21r 6 3r 1 2r 3 16r 1 1r 6 5 37r 6 1 62r 6 34r 1 64r 3 1r 1
6 2r 4 19r 6 3r 1 3r 3 16r 1 1r 6 1r 5 35r 6 1r 1 62r 6 34r 1
68r 6 2r 4 17r 6 3r 1 3 1r 1 1r 3 15r 1 2r 6 1r 5 34r 6 1r 1
63r 6 34r 1 69r 6 2r 4 15r 6 3r 1 1r 3 1r 1 1r 3 15r 1 3r 6
5 34r 6 1 63r 6 35r 1 70r 6 3r 4 11r 6 4r 1 3 3r 1 1r 3 14r 1
2r 3 1 6 1r 5 32r 6 1 64r 6 35r 1 71r 6 4r 4 7r 6 5r 1 3 3r 1
2r 3 14r 1 1r 3 1r 1 6 2r 5 30r 6 1r 1 64r 6 35r 1 73r 6 5r 4
2r 6 6r 1 3 3r 1 2r 3 15r 1 3 2r 1 1r 6 1r 5 29r 6 1r 1 65r 6
35r 1 74r 6 12r 1 3 3r 1 3r 3 20r 1 1r 6 2r 5 27r 6 1r 1 65r 6
37r 1 75r 6 9r 1 3 3r 1 4r 3 20r 1 2r 6 2r 5 25r 6 1r 1 65r 6
38r 1 85r 3 2r 1 5r 3 22r 1 2r 6 2r 5 23r 6 1r 1 65r 6 40r 1
82r 3 3r 1 5r 3 20r 1 3 1r 1 2r 6 2r 5 21r 6 2r 1 65r 6 42r 1
72r 3 4r 1 3 1 3 2r 1 7r 3 21r 1 5r 6 2r 5 19r 6 1r 1 66r 6
44r 1 72r 3 5r 1 10r 3 22r 1 6r 6 2r 5 16r 6 2r 1 1r 3 3r 1
60r 6 46r 1 87r 3 24r 1 7r 6 1r 5 13r 6 2r 1 2r 3 4r 1 59r 6
48r 1 86r 3 25r 1 7r 6 2r 5 9r 6 2r 1 3r 3 3r 1 60r 6 50r 1
85r 3 25r 1 8r 6 6r 5 1r 6 3r 1 6r 3 1r 1 61r 6 51r 1 85r 3
25r 1 10r 6 7r 1 6r 3 2r 1 61r 6 53r 1 85r 3 25r 1 21r 3 3r 1
62r 6 56r 1 84r 3 25r 1 19r 3 1r 1 64r 6 58r 1 84r 3 23r 1 86r 6
60r 1 84r 3 21r 1 86r 6 62r 1 85r 3 18r 1 86r 6 64r 1 86r 3
14r 1 87r 6 66r 1 88r 3 9r 1 88r 6 68r 1 184r 6 71r 1 181r 6
75r 1 177r 6 79r 1 174r 6 81r 1 171r 6 86r 1 166r 6 91r 1 160r 6
97r 1 155r 6 103r 1 149r 6 109r 1 142r 6 118r 1 56r 6 8r 1 67r 6
126r 1 47r 6 15r 1 61r 6 137r 1 36r 6 23r 1 52r 6 151r 1 22r 6
31r 1 43r 6 216r 1 32r 6 38340r 2 3r 6 243r 2 22r 6 227r 2 35r 6
215r 2 23r 3 6r 2 15r 6 205r 2 21r 3 13r 2 18r 6 198r 2 22r 3
16r 2 21r 6 190r 2 26r 3 16r 2 23r 6 185r 2 35r 3 11r 2 24r 6
180r 2 22r 3 2 19r 3 7r 2 24r 6 175r 2 29r 6 10r 2 6 1r 2 4r 3
5r 2 26r 6 171r 2 30r 6 15r 2 38r 6 168r 2 27r 6 22r 2 37r 6
164r 2 26r 6 12r 1 6r 6 7r 2 36r 6 161r 2 26r 6 14r 1 7r 6 8r 2
10r 6 3r 2 21r 6 157r 2 25r 6 16r 1 9r 6 10r 2 5r 6 11r 2 17r 6
153r 2 25r 6 3r 4 6r 6 7r 1 9r 6 2r 5 2r 6 24r 2 16r 6 151r 2
24r 6 4r 4 9r 6 5r 1 9r 6 2r 5 4r 6 23r 2 17r 6 147r 2 23r 6
5r 4 12r 6 4r 1 9r 6 2r 5 7r 6 21r 2 18r 6 143r 2 24r 6 4r 4
14r 6 4r 1 10r 6 1r 5 10r 6 19r 2 18r 6 140r 2 24r 6 4r 4 16r 6
3r 1 11r 6 1r 5 13r 6 18r 2 18r 6 101r 1 9r 6 22r 1 1r 6 1r 2
23r 6 4r 4 18r 6 2r 1 11r 6 1r 5 22r 6 10r 2 19r 6 96r 1 17r 6
14r 1 6r 6 2r 2 18r 6 5r 4 18r 6 2r 1 12r 6 2r 5 24r 6 8r 2
20r 6 92r 1 25r 6 5r 1 11r 6 2r 2 15r 6 4r 4 20r 6 2r 1 13r 6
1r 5 26r 6 7r 2 21r 6 89r 1 46r 6 2r 2 6r 3 1r 2 2r 6 4r 4 22r 6
2r 1 13r 6 1r 5 28r 6 6r 2 23r 6 85r 1 49r 6 2r 2 2r 3 3r 2
1r 6 4r 4 23r 6 2r 1 14r 6 1r 5 29r 6 5r 2 25r 6 82r 1 52r 6
2r 3 2r 2 2r 6 3r 4 24r 6 2r 1 14r 6 1r 5 30r 6 4r 2 26r 6 80r 1
55r 6 2r 2 2r 6 2r 4 25r 6 2r 1 16r 6 5 32r 6 3r 2 25r 6 80r 1
57r 6 5r 4 26r 6 2r 1 16r 6 1r 5 32r 6 3r 2 22r 6 81r 1 56r 3
2r 1 6 2r 4 27r 6 2r 1 16r 6 1r 5 32r 6 4r 2 18r 6 6r 1 3r 6
73r 1 56r 3 2r 1 6 1r 4 28r 6 1r 1 17r 6 1r 5 33r 6 3r 2 16r 6
5r 1 8r 6 71r 1 56r 3 1r 1 1r 6 1r 4 27r 6 3r 1 17r 6 5 34r 6
3r 2 13r 6 4r 1 13r 6 68r 1 56r 3 2r 1 6 1r 4 27r 6 1r 1 2r 6
2r 1 14r 6 5 35r 6 3r 2 9r 6 1r 1 21r 6 66r 1 56r 3 2r 1 6 1r 4
27r 6 1r 1 4r 6 4r 1 10r 6 5 36r 6 2r 2 6r 6 1r 1 35r 6 55r 1
56r 3 1r 1 1r 6 4 28r 6 1 8r 6 4r 1 7r 6 1r 5 35r 6 5r 2 6 2r 1
40r 6 51r 1 57r 3 1r 1 6 1r 4 27r 6 1r 1 11r 6 5r 1 3r 6 1r 5
36r 6 5r 1 45r 6 49r 1 56r 3 1r 1 1r 6 1r 4 27r 6 1r 1 14r 6
3r 1 3r 6 5 37r 6 2r 1 48r 6 48r 1 56r 3 1r 1 6 1r 4 28r 6 1r 1
16r 6 1r 1 3r 6 5 38r 6 1 50r 6 46r 1 57r 3 1r 1 6 1r 4 28r 6
1r 1 22r 6 5 38r 6 1 50r 6 46r 1 57r 3 1 1r 6 4 29r 6 1r 1 22r 6
5 38r 6 1r 1 50r 6 45r 1 57r 3 1 6 1r 4 29r 6 1r 1 23r 6 5 38r 6
1 51r 6 44r 1 57r 3 1 6 1r 4 30r 6 1 23r 6 5 38r 6 1 51r 6 43r 1
60r 6 1r 4 30r 6 1 23r 6 1r 5 37r 6 1 51r 6 43r 1 59r 6 1r 4
31r 6 1 23r 6 1r 5 37r 6 1 52r 6 42r 1 59r 6 1r 4 31r 6 1 24r 6
5 37r 6 1 52r 6 41r 1 60r 6 1r 4 32r 6 1 23r 6 5 37r 6 1 52r 6
41r 1 60r 6 1r 4 32r 6 1 23r 6 5 37r 6 1 53r 6 40r 1 60r 6 1r 4
32r 6 1r 1 22r 6 5 37r 6 1r 1 52r 6 39r 1 61r 6 1r 4 32r 6 1r 1
22r 6 5 37r 6 1 53r 6 39r 1 61r 6 1r 4 32r 6 1r 1 22r 6 5 37r 6
1 54r 6 38r 1 61r 6 1r 4 32r 6 1r 1 1r 6 3r 1 16r 6 5 37r 6
1 54r 6 37r 1 62r 6 1r 4 32r 6 15r 1 8r 6 5 37r 6 1 54r 6 37r 1
62r 6 2r 4 31r 6 3r 1 4r 6 7r 1 7r 6 5 37r 6 1 54r 6 37r 1 62r 6
2r 4 31r 6 2r 1 12r 6 1r 1 5r 6 5 38r 6 1 55r 6 36r 1 62r 6
2r 4 31r 6 2r 1 13r 6 1 5r 5 39r 6 1 55r 6 36r 1 62r 6 2r 4
31r 6 1r 1 15r 6 1 3r 6 5 38r 6 1 56r 6 35r 1 63r 6 2r 4 31r 6
1r 1 15r 6 1r 1 1r 6 5 39r 6 1 56r 6 35r 1 63r 6 2r 4 31r 6
1r 1 15r 6 3r 5 40r 6 1 56r 6 35r 1 64r 6 1r 4 30r 6 1r 1 16r 6
2r 5 41r 6 1 56r 6 35r 1 64r 6 2r 4 29r 6 1r 1 6r 3 4r 1 4r 6
2r 5 40r 6 1 1r 3 1r 1 54r 6 34r 1 64r 6 2r 4 29r 6 1r 1 5r 3
6r 1 4r 6 5 41r 6 1 1r 3 1r 1 54r 6 34r 1 65r 6 1r 4 28r 6 2r 1
4r 3 7r 1 4r 6 5 41r 6 1 3 1r 1 55r 6 34r 1 65r 6 1r 4 28r 6
1r 1 4r 3 9r 1 3r 6 5 40r 6 1 1r 3 1r 1 55r 6 34r 1 65r 6 2r 4
27r 6 1r 1 3r 3 11r 1 2r 6 5 40r 6 1 3 2r 1 55r 6 34r 1 66r 6
1r 4 26r 6 2r 1 2r 3 12r 1 2r 6 5 39r 6 1r 1 3 1r 1 57r 6 33r 1
66r 6 1r 4 25r 6 2r 1 2r 3 14r 1 1r 6 5 39r 6 1 1r 3 1r 1 57r 6
33r 1 66r 6 2r 4 24r 6 2r 1 2r 3 14r 1 1r 6 1r 5 38r 6 1 1r 3
1 58r 6 33r 1 67r 6 1r 4 23r 6 2r 1 1r 3 17r 1 1r 6 5 37r 6
1 62r 6 33r 1 65r 3 1 1r 6 1r 4 21r 6 3r 1 1r 3 17r 1 1r 6 5
37r 6 1 62r 6 33r 1 65r 3 1r 1 6 2r 4 20r 6 2r 1 2r 3 18r 1
6 5 36r 6 1r 1 62r 6 33r 1 66r 3 1r 1 6 1r 4 19r 6 2r 1 4r 3
17r 1 6 1r 5 34r 6 1r 1 63r 6 33r 1 67r 3 1 1r 6 1r 4 17r 6
3r 1 1r 3 1 1r 3 16r 1 2r 6 5 33r 6 1r 1 64r 6 33r 1 68r 3 1
1r 6 1r 4 15r 6 2r 1 2r 3 1r 1 1r 3 16r 1 2r 6 1r 5 32r 6 1
65r 6 33r 1 72r 6 2r 4 11r 6 3r 1 2r 3 1r 1 2r 3 15r 1 3 1r 1
6 1r 5 31r 6 1r 1 65r 6 34r 1 73r 6 3r 4 5r 6 6r 1 3 2r 1 2r 3
16r 1 3 1r 1 1r 6 1r 5 29r 6 1r 1 66r 6 34r 1 74r 6 13r 1 1r 3
2r 1 3r 3 19r 1 1r 6 2r 5 27r 6 1r 1 66r 6 35r 1 76r 6 9r 1
1r 3 2r 1 4r 3 20r 1 2r 6 1r 5 27r 6 1 67r 6 35r 1 79r 6 3r 1
3r 3 2r 1 5r 3 21r 1 1r 6 2r 5 25r 6 1 68r 6 36r 1 85r 3 2r 1
5r 3 22r 1 2r 6 2r 5 23r 6 1 68r 6 37r 1 84r 3 1r 1 6r 3 20r 1
3 2r 1 2r 6 2r 5 20r 6 1r 1 68r 6 39r 1 82r 3 1r 1 7r 3 20r 1
1r 3 2r 1 2r 6 2r 5 17r 6 1r 1 69r 6 41r 1 90r 3 22r 1 1r 3
2r 1 2r 6 2r 5 15r 6 1r 1 69r 6 43r 1 88r 3 24r 1 3r 3 1 2r 6
3r 5 10r 6 2r 1 70r 6 45r 1 87r 3 24r 1 4r 3 1 3r 6 5r 5 4r 6
2r 1 71r 6 47r 1 86r 3 25r 1 3r 3 1r 1 4r 6 9r 1 2r 3 1 68r 6
49r 1 86r 3 25r 1 3r 3 1 15r 3 1r 1 68r 6 51r 1 86r 3 24r 1
20r 3 2r 1 66r 6 53r 1 86r 3 24r 1 17r 3 4r 1 65r 6 56r 1 85r 3
23r 1 87r 6 58r 1 86r 3 19r 1 88r 6 60r 1 87r 3 15r 1 89r 6
62r 1 88r 3 12r 1 89r 6 64r 1 93r 3 2r 1 91r 6 67r 1 186r 6
70r 1 182r 6 74r 1 178r 6 77r 1 175r 6 81r 1 171r 6 86r 1 166r 6
91r 1 161r 6 96r 1 155r 6 103r 1 149r 6 110r 1 141r 6 118r 1
55r 6 9r 1 67r 6 126r 1 47r 6 16r 1 60r 6 138r 1 34r 6 24r 1
52r 6 153r 1 19r 6 33r 1 42r 6 217r 1 30r 6 38598r 2 5r 6 241r 2
22r 6 227r 2 34r 6 216r 2 23r 3 3r 2 17r 6 206r 2 20r 3 13r 2
18r 6 198r 2 22r 3 15r 2 22r 6 190r 2 26r 3 16r 2 23r 6 185r 2
20r 3 2r 2 6r 3 6r 2 2r 3 6r 2 23r 6 181r 2 21r 3 3r 2 18r 3
5r 2 25r 6 175r 2 22r 3 3r 2 6r 6 4r 2 2r 6 1r 2 4r 3 3r 2 28r 6
172r 2 23r 3 2 5r 6 13r 2 39r 6 168r 2 28r 6 19r 2 39r 6 164r 2
26r 6 12r 1 5r 6 6r 2 38r 6 161r 2 26r 6 12r 1 9r 6 6r 2 38r 6
157r 2 25r 6 14r 1 11r 6 7r 2 38r 6 153r 2 25r 6 16r 1 12r 6
9r 2 11r 6 2 23r 6 150r 2 25r 6 4r 4 6r 6 6r 1 12r 6 3r 5 1r 6
22r 2 19r 6 146r 2 26r 6 1r 4 13r 6 2r 1 14r 6 1r 5 5r 6 21r 2
19r 6 142r 2 27r 6 1r 4 14r 6 2r 1 14r 6 1r 5 7r 6 21r 2 18r 6
102r 1 10r 6 28r 2 25r 6 1r 4 15r 6 2r 1 14r 6 5 10r 6 20r 2
19r 6 97r 1 19r 6 16r 1 3r 6 2r 2 23r 6 1r 4 16r 6 2r 1 14r 6
1r 5 11r 6 19r 2 20r 6 93r 1 26r 6 6r 1 10r 6 3r 2 17r 6 3r 4
17r 6 2r 1 14r 6 1r 5 14r 6 16r 2 22r 6 90r 1 48r 6 2r 2 12r 6
5r 4 18r 6 2r 1 15r 6 1r 5 16r 6 15r 2 23r 6 87r 1 51r 6 1r 2
9r 6 4r 4 21r 6 2r 1 14r 6 1r 5 20r 6 12r 2 25r 6 83r 1 54r 6
2 7r 6 4r 4 22r 6 2r 1 14r 6 1r 5 23r 6 10r 2 25r 6 81r 1 56r 6
2r 2 2r 6 5r 4 22r 6 3r 1 15r 6 1r 5 24r 6 9r 2 23r 6 82r 1
58r 6 8r 4 23r 6 3r 1 15r 6 1r 5 26r 6 7r 2 22r 6 3r 1 3r 6
75r 1 57r 3 1r 1 6 5r 4 24r 6 2r 1 16r 6 1r 5 27r 6 7r 2 20r 6
3r 1 6r 6 72r 1 57r 3 2r 1 1r 6 3r 4 25r 6 2r 1 16r 6 1r 5 29r 6
6r 2 16r 6 4r 1 10r 6 70r 1 57r 3 1r 1 1r 6 3r 4 26r 6 3r 1
15r 6 1r 5 31r 6 5r 2 12r 6 4r 1 15r 6 68r 1 57r 3 1r 1 1r 6
2r 4 27r 6 1 2r 6 2r 1 13r 6 5 31r 6 5r 2 9r 6 3r 1 32r 6 54r 1
57r 3 2r 1 6 2r 4 27r 6 1 5r 6 4r 1 9r 6 5 32r 6 6r 2 4r 6 1r 1
40r 6 51r 1 57r 3 2r 1 6 1r 4 28r 6 1 8r 6 4r 1 6r 6 1r 5 31r 6
10r 1 45r 6 49r 1 57r 3 1r 1 6 1r 4 28r 6 1r 1 11r 6 4r 1 3r 6
1r 5 33r 6 6r 1 48r 6 47r 1 58r 3 1r 1 6 1r 4 28r 6 1r 1 13r 6
3r 1 2r 6 1r 5 34r 6 4r 1 50r 6 46r 1 58r 3 1r 1 6 1r 4 28r 6
1r 1 20r 6 1r 5 34r 6 3r 1 52r 6 45r 1 57r 3 2r 1 6 4 28r 6
2r 1 20r 6 5 35r 6 3r 1 52r 6 44r 1 58r 3 1r 1 6 1r 4 29r 6
1r 1 20r 6 5 36r 6 3r 1 52r 6 43r 1 58r 3 1r 1 6 1r 4 29r 6
1r 1 20r 6 5 37r 6 2r 1 52r 6 43r 1 58r 3 1r 1 6 1r 4 29r 6
1r 1 21r 5 38r 6 1r 1 53r 6 42r 1 58r 3 1r 1 6 4 30r 6 1r 1
21r 6 5 37r 6 1r 1 53r 6 41r 1 59r 3 1 6 1r 4 30r 6 1r 1 21r 6
5 37r 6 1r 1 53r 6 41r 1 59r 3 1 6 1r 4 31r 6 1 21r 6 5 38r 6
1 54r 6 40r 1 61r 6 1r 4 31r 6 1 21r 6 5 38r 6 1r 1 53r 6 39r 1
62r 6 1r 4 31r 6 1 21r 6 5 38r 6 1r 1 53r 6 39r 1 62r 6 1r 4
31r 6 1 21r 6 5 38r 6 1r 1 54r 6 38r 1 62r 6 1r 4 31r 6 1r 1
20r 6 5 38r 6 1r 1 54r 6 37r 1 63r 6 1r 4 31r 6 1r 1 21r 6 5
37r 6 1r 1 54r 6 37r 1 63r 6 1r 4 31r 6 1r 1 6 5r 1 14r 6 5
37r 6 1r 1 54r 6 37r 1 63r 6 1r 4 31r 6 15r 1 7r 6 5 37r 6 1r 1
55r 6 36r 1 63r 6 1r 4 31r 6 2r 1 10r 6 2r 1 6r 6 5 37r 6 1
56r 6 35r 1 64r 6 1r 4 31r 6 2r 1 12r 6 1r 1 4r 6 1r 5 37r 6
1 56r 6 35r 1 64r 6 1r 4 31r 6 1r 1 14r 6 1 4r 6 5 38r 6 1 56r 6
35r 1 64r 6 1r 4 31r 6 1r 1 15r 6 1 2r 6 5 39r 6 1 56r 6 35r 1
64r 6 1r 4 30r 6 2r 1 15r 6 3r 5 39r 6 1 58r 6 34r 1 64r 6 2r 4
29r 6 1r 1 16r 6 3r 5 39r 6 1 58r 6 34r 1 64r 6 2r 4 29r 6 1r 1
7r 3 3r 1 4r 6 2r 5 40r 6 1 58r 6 34r 1 65r 6 1r 4 29r 6 1r 1
6r 3 4r 1 4r 6 2r 5 40r 6 1 58r 6 34r 1 65r 6 2r 4 27r 6 2r 1

5r 3 6r 1 4r 6 5 40r 6 1 59r 6 34r 1 65r 6 2r 4 27r 6 1r 1 4r 3
9r 1 3r 6 5 40r 6 1 60r 6 33r 1 66r 6 1r 4 26r 6 2r 1 4r 3 9r 1
3r 6 5 40r 6 1 1r 3 1 57r 6 33r 1 66r 6 2r 4 25r 6 2r 1 3r 3
11r 1 2r 6 5 39r 6 1r 1 3 1r 1 57r 6 33r 1 66r 6 2r 4 24r 6
2r 1 3r 3 13r 1 1r 6 1r 5 38r 6 1 1r 3 1r 1 57r 6 33r 1 67r 6
2r 4 23r 6 2r 1 1r 3 15r 1 1r 6 1r 5 37r 6 1r 1 3 1r 1 58r 6
33r 1 67r 6 2r 4 22r 6 2r 1 1r 3 17r 1 1r 6 5 37r 6 1 1r 3 1r 1
58r 6 33r 1 68r 6 2r 4 20r 6 3r 1 1r 3 17r 1 1r 6 5 36r 6 1r 1
3 1r 1 59r 6 33r 1 68r 6 2r 4 19r 6 3r 1 1r 3 19r 1 6 5 36r 6
1 1r 3 1 60r 6 33r 1 69r 6 3r 4 15r 6 4r 1 2r 3 19r 1 6 1r 5
34r 6 1r 1 63r 6 33r 1 66r 3 2r 1 6 4r 4 13r 6 4r 1 2r 3 19r 1
6 1r 5 33r 6 1r 1 64r 6 33r 1 67r 3 1r 1 1r 6 3r 4 11r 6 5r 1
2r 3 21r 1 6 1r 5 32r 6 1 65r 6 33r 1 68r 3 1 2r 6 4r 4 8r 6
5r 1 2r 3 22r 1 6 1r 5 31r 6 1r 1 65r 6 33r 1 69r 3 1 2r 6 17r 1
6r 3 19r 1 6 2r 5 29r 6 1r 1 66r 6 33r 1 75r 6 14r 1 6r 3 20r 1
1r 6 1r 5 28r 6 1r 1 67r 6 33r 1 77r 6 10r 1 8r 3 20r 1 1r 6
2r 5 27r 6 1 68r 6 33r 1 79r 6 6r 1 3r 3 1 4r 3 22r 1 1r 6 2r 5
25r 6 1 69r 6 34r 1 86r 3 2r 1 5r 3 22r 1 2r 6 3r 5 22r 6 1
69r 6 35r 1 86r 3 1 6r 3 23r 1 3r 6 3r 5 19r 6 1r 1 70r 6 36r 1
93r 3 20r 1 1r 3 1r 1 3r 6 3r 5 17r 6 1r 1 70r 6 38r 1 91r 3
22r 1 1r 3 1r 1 3r 6 3r 5 15r 6 1 72r 6 38r 1 91r 3 22r 1 1r 3
3r 1 2r 6 10r 5 1r 6 5 6 3r 1 72r 6 40r 1 89r 3 24r 1 2r 3 2r 1
2r 6 15r 1 73r 6 42r 1 88r 3 24r 1 3r 3 3r 1 2r 6 11r 1 74r 6
44r 1 88r 3 24r 1 3r 3 3r 1 7r 6 1r 1 76r 6 47r 1 88r 3 24r 1
3r 3 2r 1 12r 3 2r 1 69r 6 49r 1 87r 3 24r 1 12r 3 9r 1 68r 6
52r 1 86r 3 23r 1 15r 3 5r 1 68r 6 54r 1 87r 3 21r 1 89r 6 56r 1
88r 3 17r 1 89r 6 59r 1 90r 3 12r 1 90r 6 61r 1 91r 3 9r 1 90r 6
64r 1 188r 6 67r 1 186r 6 70r 1 182r 6 73r 1 179r 6 77r 1 175r 6
81r 1 171r 6 86r 1 166r 6 91r 1 160r 6 97r 1 155r 6 103r 1 149r 6
110r 1 64r 6 1r 1 74r 6 118r 1 54r 6 11r 1 66r 6 126r 1 46r 6
18r 1 58r 6 141r 1 32r 6 25r 1 50r 6 156r 1 16r 6 35r 1 40r 6
219r 1 25r 6 38860r 2 6r 6 240r 2 21r 6 228r 2 33r 6 216r 2
22r 3 1r 2 3 2 17r 6 206r 2 20r 3 12r 2 19r 6 198r 2 22r 3 15r 2
21r 6 192r 2 18r 3 1r 2 4r 3 16r 2 23r 6 185r 2 20r 3 2r 2 6r 3
5r 2 2r 3 8r 2 22r 6 181r 2 20r 3 4r 2 10r 3 2 6r 3 7r 2 23r 6
176r 2 21r 3 4r 2 20r 3 2r 2 3 2r 2 25r 6 172r 2 21r 3 3r 2
6r 6 9r 2 41r 6 168r 2 22r 3 2 5r 6 17r 2 13r 3 3r 2 22r 6 164r 2
27r 6 10r 1 5r 6 6r 2 11r 3 4r 2 22r 6 161r 2 27r 6 10r 1 10r 6
5r 2 10r 3 4r 2 23r 6 157r 2 26r 6 12r 1 13r 6 6r 2 8r 3 3r 2
25r 6 153r 2 25r 6 15r 1 13r 6 8r 2 37r 6 150r 2 26r 6 5r 4
2r 6 7r 1 14r 6 3r 5 1r 6 3r 2 6r 6 1r 2 28r 6 145r 2 28r 6
4r 4 6r 6 5r 1 14r 6 2r 5 4r 6 4r 2 3r 6 2 31r 6 101r 1 13r 6
23r 1 1r 6 1r 2 27r 6 3r 4 9r 6 4r 1 14r 6 2r 5 6r 6 7r 2 6
2 31r 6 97r 1 20r 6 14r 1 8r 6 1r 2 23r 6 2r 4 12r 6 3r 1 14r 6
1r 5 8r 6 19r 2 21r 6 95r 1 27r 6 5r 1 12r 6 2r 2 19r 6 3r 4
14r 6 2r 1 15r 6 5 12r 6 17r 2 22r 6 91r 1 48r 6 3r 2 16r 6
2r 4 16r 6 2r 1 15r 6 1r 5 13r 6 16r 2 23r 6 88r 1 51r 6 3r 2
9r 6 1r 2 1r 6 2r 4 17r 6 3r 1 14r 6 1r 5 15r 6 15r 2 25r 6
84r 1 54r 6 3r 2 6r 6 7r 4 17r 6 3r 1 14r 6 1r 5 16r 6 15r 2
25r 6 83r 1 58r 6 1r 2 4r 6 5r 4 19r 6 3r 1 15r 6 1r 5 17r 6
14r 2 24r 6 82r 1 61r 6 2r 2 6 5r 4 20r 6 3r 1 15r 6 1r 5 19r 6
12r 2 22r 6 3r 1 4r 6 75r 1 62r 6 7r 4 21r 6 3r 1 15r 6 1r 5
22r 6 10r 2 2r 3 2 13r 6 6r 1 7r 6 72r 1 65r 6 4r 4 22r 6 3r 1
15r 6 1r 5 24r 6 10r 2 3 1r 2 9r 6 4r 1 15r 6 69r 1 64r 6 4r 4
23r 6 5r 1 14r 6 5 27r 6 8r 2 3 2 6r 6 5r 1 20r 6 1r 1 9r 6
54r 1 64r 6 3r 4 23r 6 2r 1 2r 6 4r 1 10r 6 5 30r 6 5r 2 3 1r 2
2r 6 3r 1 40r 6 50r 1 64r 6 3r 4 24r 6 1r 1 5r 6 4r 1 8r 6 1r 5
31r 6 3r 2 3r 6 3r 1 44r 6 48r 1 63r 6 3r 4 25r 6 1r 1 7r 6
6r 1 4r 6 1r 5 32r 6 3r 2 6 2r 1 48r 6 47r 1 63r 6 2r 4 26r 6
1r 1 11r 6 4r 1 2r 6 1r 5 33r 6 3r 1 52r 6 46r 1 62r 6 2r 4
27r 6 1 14r 6 2r 1 2r 6 1r 5 34r 6 2r 1 53r 6 44r 1 63r 6 2r 4
27r 6 1 20r 6 1r 5 35r 6 1r 1 54r 6 43r 1 59r 3 1 1r 6 2r 4
28r 6 1 20r 6 1r 5 35r 6 1r 1 54r 6 43r 1 59r 3 1r 1 6 2r 4
28r 6 1r 1 19r 6 1r 5 36r 6 1 55r 6 41r 1 59r 3 2r 1 6 2r 4
28r 6 1r 1 19r 6 1r 5 36r 6 1r 1 54r 6 41r 1 59r 3 2r 1 6 2r 4
28r 6 1r 1 19r 6 1r 5 37r 6 1 54r 6 41r 1 59r 3 2r 1 6 1r 4
29r 6 1r 1 19r 6 1r 5 37r 6 1 55r 6 40r 1 59r 3 1r 1 6 2r 4
29r 6 1r 1 19r 6 1r 5 37r 6 1 55r 6 39r 1 60r 3 1r 1 6 2r 4
29r 6 1r 1 19r 6 1r 5 38r 6 1 54r 6 39r 1 60r 3 1r 1 6 2r 4
29r 6 1r 1 19r 6 1r 5 38r 6 1 55r 6 38r 1 60r 3 1 1r 6 2r 4
29r 6 1 20r 6 1r 5 38r 6 1 55r 6 37r 1 61r 3 1 1r 6 2r 4 29r 6
1 21r 6 5 38r 6 1 55r 6 37r 1 63r 6 3r 4 29r 6 1r 1 20r 6 5
38r 6 1 55r 6 37r 1 63r 6 2r 4 30r 6 1r 1 20r 5 39r 6 1 56r 6
35r 1 64r 6 2r 4 30r 6 15r 1 6r 6 5 38r 6 1 56r 6 35r 1 64r 6
2r 4 30r 6 3r 1 2r 6 9r 1 5r 6 5 38r 6 1 56r 6 35r 1 64r 6 2r 4
30r 6 2r 1 12r 6 1r 1 3r 6 5 39r 6 1 56r 6 35r 1 64r 6 2r 4
30r 6 1r 1 14r 6 1 3r 6 5 38r 6 1r 1 57r 6 34r 1 65r 6 1r 4
30r 6 1r 1 14r 6 1r 1 2r 5 39r 6 1r 1 57r 6 33r 1 66r 6 1r 4
30r 6 1r 1 15r 6 3r 5 39r 6 1 58r 6 33r 1 66r 6 1r 4 30r 6 1
16r 6 2r 5 40r 6 1 58r 6 33r 1 66r 6 1r 4 30r 6 1 7r 3 2r 1
5r 6 2r 5 39r 6 1 59r 6 33r 1 66r 6 2r 4 28r 6 1r 1 6r 3 4r 1
4r 6 1r 5 40r 6 1 60r 6 32r 1 66r 6 2r 4 28r 6 1r 1 5r 3 6r 1
3r 6 1r 5 40r 6 1 60r 6 32r 1 67r 6 2r 4 26r 6 1r 1 5r 3 8r 1
3r 6 5 40r 6 1 60r 6 32r 1 67r 6 2r 4 26r 6 1r 1 4r 3 9r 1 3r 6
5 39r 6 1 61r 6 32r 1 67r 6 2r 4 25r 6 1r 1 4r 3 11r 1 2r 6
5 39r 6 1 61r 6 32r 1 68r 6 2r 4 23r 6 2r 1 3r 3 12r 1 2r 6
5 39r 6 1 61r 6 32r 1 68r 6 2r 4 23r 6 2r 1 2r 3 14r 1 1r 6
1r 5 37r 6 1 63r 6 31r 1 69r 6 1r 4 22r 6 2r 1 2r 3 15r 1 2r 6
5 37r 6 1 1r 3 1r 1 59r 6 31r 1 69r 6 2r 4 21r 6 1r 1 2r 3 17r 1
1r 6 5 36r 6 1r 1 3 1r 1 60r 6 31r 1 70r 6 2r 4 19r 6 2r 1 1r 3
18r 1 1r 6 5 36r 6 1 3 2r 1 60r 6 31r 1 70r 6 3r 4 16r 6 3r 1
2r 3 19r 1 6 1r 5 34r 6 1 1r 3 1r 1 61r 6 31r 1 71r 6 3r 4 14r 6
3r 1 2r 3 20r 1 6 1r 5 33r 6 1r 1 1r 3 1 62r 6 31r 1 72r 6 3r 4
13r 6 3r 1 1r 3 21r 1 1r 6 5 33r 6 1 1r 3 1r 1 62r 6 31r 1 69r 3
1r 1 1r 6 4r 4 9r 6 4r 1 2r 3 22r 1 6 1r 5 31r 6 1 2r 3 1 63r 6
31r 1 69r 3 2r 1 1r 6 7r 4 3r 6 5r 1 2r 3 23r 1 6 1r 5 30r 6
1r 1 67r 6 32r 1 69r 3 1r 1 3r 6 14r 1 3r 3 23r 1 1r 6 1r 5
28r 6 1r 1 68r 6 32r 1 70r 3 1r 1 4r 6 11r 1 3r 3 24r 1 1r 6
2r 5 26r 6 1r 1 69r 6 32r 1 79r 6 7r 1 6r 3 24r 1 1r 6 2r 5
24r 6 1r 1 70r 6 32r 1 94r 3 24r 1 2r 6 2r 5 22r 6 1r 1 70r 6
33r 1 94r 3 24r 1 2r 6 3r 5 20r 6 1r 1 71r 6 34r 1 93r 3 24r 1
3r 6 3r 5 18r 6 1r 1 72r 6 34r 1 93r 3 22r 1 3 1r 1 3r 6 3r 5
15r 6 2r 1 72r 6 36r 1 91r 3 23r 1 3 2r 1 3r 6 5r 5 9r 6 3r 1
73r 6 38r 1 90r 3 24r 1 1r 3 2r 1 3r 6 9r 5 6 5r 1 74r 6 39r 1
89r 3 25r 1 2r 3 1r 1 4r 6 11r 1 76r 6 41r 1 88r 3 25r 1 4r 3
1r 1 5r 6 6r 1 77r 6 43r 1 89r 3 23r 1 5r 3 2r 1 87r 6 45r 1
88r 3 24r 1 4r 3 8r 1 79r 6 48r 1 88r 3 23r 1 9r 3 9r 1 72r 6
50r 1 88r 3 22r 1 91r 6 52r 1 89r 3 18r 1 91r 6 56r 1 89r 3
15r 1 91r 6 58r 1 92r 3 9r 1 91r 6 61r 1 193r 6 62r 1 189r 6
67r 1 186r 6 69r 1 183r 6 73r 1 179r 6 77r 1 175r 6 81r 1 171r 6
86r 1 165r 6 92r 1 160r 6 98r 1 154r 6 104r 1 147r 6 111r 1
62r 6 5r 1 71r 6 119r 1 54r 6 12r 1 64r 6 127r 1 45r 6 21r 1
56r 6 143r 1 29r 6 28r 1 47r 6 161r 1 8r 6 40r 1 37r 6 224r 1
13r 6 5r 1 6 39119r 2 7r 6 240r 2 20r 6 229r 2 32r 6 217r 2
20r 3 1r 2 20r 6 207r 2 18r 3 12r 2 20r 6 198r 2 15r 3 2 3r 3
17r 2 21r 6 191r 2 17r 3 1r 2 5r 3 17r 2 22r 6 186r 2 18r 3
2r 2 7r 3 4r 2 2r 3 9r 2 23r 6 181r 2 19r 3 3r 2 9r 3 2r 2 5r 3
8r 2 23r 6 177r 2 19r 3 5r 2 19r 3 8r 2 24r 6 172r 2 21r 3 3r 2
7r 6 5r 2 19r 3 3r 2 20r 6 168r 2 21r 3 2r 2 7r 6 13r 2 14r 3
4r 2 21r 6 164r 2 21r 3 2r 2 6r 6 18r 2 12r 3 5r 2 22r 6 160r 2
23r 3 2 4r 6 9r 1 7r 6 7r 2 9r 3 5r 2 23r 6 157r 2 28r 6 10r 1
11r 6 7r 2 8r 3 2 3r 3 1r 2 23r 6 153r 2 27r 6 13r 1 14r 6 7r 2
10r 3 3r 2 23r 6 107r 1 5r 6 35r 2 23r 3 2 2r 6 15r 1 15r 6
7r 2 9r 3 4r 2 23r 6 102r 1 15r 6 24r 1 6 2r 2 23r 3 2 2r 6
5r 4 2r 6 7r 1 16r 6 7r 2 10r 3 3r 2 24r 6 98r 1 22r 6 15r 1
6r 6 2r 2 19r 3 1r 2 2r 6 3r 4 8r 6 4r 1 16r 6 9r 2 10r 3 1r 2
26r 6 95r 1 30r 6 5r 1 12r 6 1r 2 16r 3 2 3r 6 2r 4 11r 6 3r 1
16r 6 2r 5 1r 6 7r 2 38r 6 92r 1 52r 6 2r 2 16r 6 2r 4 14r 6
2r 1 16r 6 1r 5 7r 6 8r 2 6r 6 2 27r 6 88r 1 55r 6 2r 2 12r 6
3r 4 15r 6 2r 1 16r 6 1r 5 8r 6 11r 2 2r 6 2 30r 6 84r 1 57r 6
4r 2 7r 6 4r 4 16r 6 2r 1 16r 6 1r 5 10r 6 16r 2 28r 6 83r 1
60r 6 4r 2 2r 6 5r 4 17r 6 2r 1 16r 6 1r 5 11r 6 18r 2 24r 6
83r 1 63r 6 11r 4 17r 6 3r 1 16r 6 5 13r 6 16r 2 23r 6 3r 1
4r 6 75r 1 65r 6 7r 4 19r 6 3r 1 16r 6 5 17r 6 13r 2 20r 6 2r 1
10r 6 72r 1 66r 6 5r 4 20r 6 3r 1 16r 6 5 21r 6 10r 2 15r 6
3r 1 16r 6 6r 1 6r 6 54r 1 66r 6 4r 4 22r 6 6r 1 13r 6 5 24r 6
9r 2 1r 3 2 6r 6 4r 1 36r 6 51r 1 65r 6 4r 4 23r 6 2r 1 2r 6
4r 1 9r 6 5 26r 6 8r 2 3 2 3r 6 4r 1 42r 6 48r 1 65r 6 4r 4
23r 6 1r 1 5r 6 4r 1 7r 6 5 29r 6 6r 2 6 5r 1 46r 6 46r 1 65r 6
4r 4 24r 6 1r 1 9r 6 4r 1 3r 6 5 31r 6 6r 1 52r 6 45r 1 65r 6
3r 4 25r 6 1r 1 11r 6 3r 1 2r 6 5 33r 6 2r 1 55r 6 44r 1 64r 6
3r 4 26r 6 1r 1 18r 6 5 34r 6 1r 1 3 1r 1 53r 6 43r 1 64r 6
2r 4 27r 6 1r 1 18r 6 5 35r 6 1r 1 3 1 53r 6 42r 1 64r 6 3r 4
27r 6 1r 1 18r 6 5 36r 6 1 3 1r 1 53r 6 41r 1 64r 6 2r 4 28r 6
1r 1 18r 6 5 36r 6 1 1r 3 1 53r 6 41r 1 64r 6 1r 4 29r 6 1 19r 6
1r 5 36r 6 1 56r 6 39r 1 64r 6 2r 4 29r 6 1r 1 18r 6 1r 5 36r 6
1 56r 6 39r 1 61r 3 1r 1 6 1r 4 30r 6 1r 1 18r 6 1r 5 36r 6
1 56r 6 39r 1 61r 3 1r 1 6 1r 4 30r 6 1r 1 18r 6 1r 5 37r 1
57r 6 37r 1 62r 3 1r 1 6 1r 4 30r 6 1 19r 6 1r 5 37r 6 1 56r 6
37r 1 61r 3 2r 1 6 1r 4 30r 6 1 19r 6 5 38r 6 1 56r 6 37r 1
61r 3 1r 1 1r 6 1r 4 30r 6 1 19r 6 5 38r 6 1 56r 6 37r 1 61r 3
1r 1 1r 6 1r 4 30r 6 1 19r 6 5 38r 6 1 57r 6 35r 1 63r 3 1 6
2r 4 30r 1 20r 6 5 38r 6 1 57r 6 35r 1 65r 6 2r 4 30r 6 1 6
6r 1 2r 6 1 7r 6 5 38r 6 1 57r 6 35r 1 65r 6 2r 4 30r 6 15r 1
4r 6 5 38r 6 1 58r 6 34r 1 65r 6 2r 4 29r 6 2r 1 10r 6 3r 1
2r 6 5 39r 6 1 58r 6 33r 1 66r 6 2r 4 29r 6 1r 1 13r 6 1r 1
2r 6 5 39r 6 1r 1 57r 6 33r 1 66r 6 2r 4 29r 6 1r 1 14r 6 1r 1
1r 6 5 39r 6 1 58r 6 33r 1 66r 6 2r 4 28r 6 2r 1 15r 6 1 6 5
40r 6 1 59r 6 32r 1 67r 6 1r 4 28r 6 1r 1 16r 6 2r 5 39r 6 1r 1
59r 6 32r 1 67r 6 2r 4 27r 6 1r 1 8r 3 1r 1 5r 6 1r 5 40r 6
1 60r 6 32r 1 67r 6 2r 4 26r 6 2r 1 6r 3 4r 1 4r 6 1r 5 40r 6
1 60r 6 32r 1 67r 6 2r 4 26r 6 1r 1 6r 3 6r 1 3r 6 1r 5 40r 6
1 60r 6 32r 1 67r 6 3r 4 24r 6 2r 1 5r 3 7r 1 4r 6 5 39r 6 1
61r 6 32r 1 68r 6 2r 4 24r 6 2r 1 4r 3 9r 1 3r 6 5 39r 6 1 62r 6
31r 1 68r 6 2r 4 23r 6 3r 1 3r 3 11r 1 2r 6 5 39r 6 1 62r 6
31r 1 68r 6 3r 4 22r 6 2r 1 3r 3 12r 1 2r 6 1r 5 37r 6 1r 1
62r 6 31r 1 69r 6 2r 4 21r 6 3r 1 2r 3 14r 1 1r 6 1r 5 37r 6
1 63r 6 31r 1 69r 6 3r 4 20r 6 2r 1 3r 3 14r 1 2r 6 1r 5 36r 6
1 63r 6 31r 1 70r 6 3r 4 18r 6 2r 1 3r 3 16r 1 1r 6 1r 5 35r 6
1r 1 63r 6 31r 1 70r 6 4r 4 17r 6 2r 1 3 1 1r 3 16r 1 1r 6 1r 5
35r 6 1 64r 6 31r 1 71r 6 4r 4 15r 6 2r 1 3 20r 1 1r 6 1r 5
34r 6 1r 1 1r 3 1 61r 6 31r 1 71r 6 5r 4 12r 6 3r 1 3r 3 18r 1
1r 6 1r 5 33r 6 1r 1 3 1r 1 62r 6 31r 1 72r 6 5r 4 11r 6 2r 1
4r 3 18r 1 1r 6 2r 5 32r 6 1 1r 3 1r 1 62r 6 31r 1 74r 6 5r 4
7r 6 3r 1 3r 3 20r 1 2r 6 1r 5 31r 6 1r 1 3 1r 1 63r 6 31r 1
75r 6 15r 1 3r 3 22r 1 1r 6 2r 5 29r 6 1r 1 3 1r 1 64r 6 31r 1
71r 3 1r 1 2r 6 14r 1 2r 3 24r 1 1r 6 1r 5 29r 6 1 1r 3 1r 1
64r 6 31r 1 71r 3 1 5r 6 10r 1 4r 3 24r 1 1r 6 2r 5 27r 6 1
1r 3 1r 1 65r 6 31r 1 72r 3 1 7r 6 6r 1 4r 3 26r 1 1r 6 2r 5
25r 6 1 70r 6 31r 1 93r 3 26r 1 1r 6 3r 5 22r 6 1r 1 2r 3 1
67r 6 32r 1 92r 3 27r 1 1r 6 2r 5 22r 6 1 72r 6 32r 1 92r 3
27r 1 2r 6 2r 5 19r 6 1r 1 73r 6 33r 1 91r 3 27r 1 3r 6 2r 5
17r 6 1r 1 73r 6 34r 1 91r 3 27r 1 4r 6 3r 5 13r 6 2r 1 74r 6
35r 1 90r 3 28r 1 4r 6 6r 5 5r 6 4r 1 75r 6 37r 1 89r 3 27r 1
7r 6 13r 1 76r 6 39r 1 89r 3 25r 1 11r 6 7r 1 78r 6 41r 1 90r 3
23r 1 97r 6 42r 1 90r 3 24r 1 95r 6 45r 1 89r 3 23r 1 8r 3 1
84r 6 47r 1 89r 3 22r 1 92r 6 50r 1 89r 3 19r 1 93r 6 52r 1
90r 3 16r 1 92r 6 55r 1 94r 3 9r 1 93r 6 58r 1 195r 6 60r 1
193r 6 62r 1 189r 6 67r 1 186r 6 69r 1 183r 6 73r 1 179r 6 77r 1
175r 6 81r 1 170r 6 87r 1 165r 6 92r 1 160r 6 98r 1 154r 6 104r 1
147r 6 112r 1 60r 6 8r 1 69r 6 120r 1 52r 6 15r 1 62r 6 128r 1
44r 6 22r 1 54r 6 146r 1 26r 6 30r 1 45r 6 213r 1 35r 6 39622r 2
9r 6 239r 2 21r 6 228r 2 33r 6 217r 2 18r 3 1r 2 21r 6 207r 2
17r 3 13r 2 20r 6 198r 2 18r 3 18r 2 22r 6 191r 2 15r 3 2r 2
4r 3 18r 2 23r 6 186r 2 16r 3 3r 2 8r 3 16r 2 23r 6 182r 2 17r 3
4r 2 10r 3 2r 2 3r 3 9r 2 24r 6 176r 2 19r 3 4r 2 13r 3 2 5r 3
8r 2 2r 3 1r 2 20r 6 172r 2 19r 3 3r 2 35r 3 3r 2 20r 6 168r 2
20r 3 2r 2 7r 6 10r 2 19r 3 2r 2 22r 6 164r 2 21r 3 2r 2 6r 6
17r 2 12r 3 4r 2 23r 6 160r 2 22r 3 2r 2 5r 6 9r 1 1r 6 11r 2
9r 3 4r 2 25r 6 156r 2 23r 3 2 5r 6 10r 1 11r 6 5r 2 8r 3 1r 2
1r 3 4r 2 22r 6 106r 1 9r 6 35r 2 24r 3 2 3r 6 11r 1 15r 6 5r 2
10r 3 5r 2 22r 6 101r 1 18r 6 25r 1 1r 6 1r 2 23r 3 1r 2 1r 6
14r 1 16r 6 6r 2 10r 3 4r 2 23r 6 98r 1 24r 6 15r 1 9r 6 2 20r 3
2 2r 6 5r 4 6 7r 1 18r 6 7r 2 9r 3 4r 2 24r 6 95r 1 32r 6 1r 1
18r 6 1r 2 20r 6 3r 4 6r 6 4r 1 18r 6 3r 5 6 3r 2 9r 3 4r 2
25r 6 92r 1 56r 6 1r 2 16r 6 4r 4 10r 6 2r 1 17r 6 1r 5 3r 6
3r 2 9r 3 3r 2 28r 6 88r 1 59r 6 2r 2 12r 6 3r 4 12r 6 2r 1
17r 6 1r 5 5r 6 3r 2 9r 3 1r 2 31r 6 85r 1 61r 6 2r 2 9r 6 3r 4
14r 6 1r 1 17r 6 1r 5 6r 6 4r 2 42r 6 83r 1 63r 6 3r 2 6r 6
2r 4 16r 6 2r 1 16r 6 1r 5 8r 6 7r 2 36r 6 84r 1 65r 6 4r 2
1r 6 3r 4 17r 6 2r 1 16r 6 1r 5 10r 6 9r 2 30r 6 4r 1 5r 6 74r 1
68r 6 7r 4 18r 6 2r 1 16r 6 1r 5 13r 6 10r 2 24r 6 3r 1 11r 6
71r 1 70r 6 4r 4 19r 6 3r 1 15r 6 1r 5 15r 6 13r 2 15r 6 3r 1
19r 6 3r 1 9r 6 53r 1 69r 6 3r 4 22r 6 6r 1 11r 6 5 19r 6 12r 2
9r 6 4r 1 40r 6 48r 1 69r 6 3r 4 23r 6 1r 1 2r 6 3r 1 10r 5
21r 6 11r 2 5r 6 4r 1 45r 6 46r 1 69r 6 2r 4 24r 6 1r 1 4r 6

4r 1 7r 5 25r 6 8r 2 2r 6 3r 1 49r 6 45r 1 68r 6 2r 4 25r 6 1 9r 6 3r 1 3r 6 5 29r 6 7r 1 54r 6 43r 1 68r 6 3r 4 25r 6 1 11r 6 1r 1 3r 6 5 31r 6 3r 1 1r 3 1 54r 6 42r 1 68r 6 2r 4 26r 6 1 17r 6 5 32r 6 2r 1 3 2r 1 53r 6 42r 1 66r 6 3r 4 27r 6 1 17r 6 5 34r 6 1r 1 3 1r 1 54r 6 40r 1 67r 6 3r 4 27r 6 1 17r 6 5 34r 6 1r 1 3 2r 1 53r 6 40r 1 66r 6 3r 4 28r 6 1 17r 5 36r 6 1 3 2r 1 54r 6 39r 1 66r 6 3r 4 28r 1 17r 6 5 36r 6 1r 1 3 1r 1 54r 6 39r 1 65r 6 3r 4 29r 6 1 16r 6 5 37r 6 1 3 2r 1 54r 6 37r 1 66r 6 2r 4 29r 6 1r 1 16r 6 5 37r 6 1 3 2r 1 54r 6 37r 1 66r 6 2r 4 29r 6 1 17r 6 5 37r 6 1r 1 3 1r 1 54r 6 37r 1 66r 6 2r 4 29r 6 1 17r 6 5 37r 6 1r 1 3 1r 1 54r 6 36r 1 67r 6 2r 4 28r 6 1 18r 5 39r 6 1 3 1r 1 55r 6 35r 1 63r 3 1r 1 1r 6 2r 4 28r 6 1 18r 5 39r 6 1 3 2r 1 54r 6 35r 1 63r 3 1r 1 1r 6 2r 4 28r 6 1 18r 5 39r 6 1 1r 3 1r 1 54r 6 35r 1 63r 3 1r 1 1r 6 2r 4 28r 6 1 18r 5 39r 6 1r 1 3 1 56r 6 33r 1 64r 3 1r 1 1r 6 2r 4 28r 6 14r 1 4r 5 39r 6 1r 1 3 1 56r 6 33r 1 64r 3 1r 1 6 3r 4 27r 6 4r 1 1r 6 10r 1 2r 5 39r 6 1r 1 58r 6 33r 1 65r 3 1 6 3r 4 27r 6 2r 1 12r 6 1r 1 2r 5 39r 6 1r 1 58r 6 33r 1 65r 3 1 6 3r 4 27r 6 1r 1 14r 6 1r 1 6 5 39r 6 1r 1 59r 6 32r 1 67r 6 3r 4 26r 6 2r 1 15r 6 1 6 5 39r 6 1r 1 59r 6 31r 1 68r 6 3r 4 26r 6 1r 1 16r 6 2r 5 39r 6 1r 1 59r 6 31r 1 69r 6 2r 4 26r 6 1r 1 16r 6 1r 5 40r 6 1 60r 6 31r 1 69r 6 2r 4 25r 6 2r 1 6r 3 4r 1 5r 6 5 39r 6 1r 1 60r 6 31r 1 69r 6 2r 4 25r 6 1r 1 6r 3 6r 1 4r 6 5 39r 6 1 62r 6 30r 1 69r 6 3r 4 23r 6 2r 1 5r 3 7r 1 4r 6 1r 5 38r 6 1 62r 6 30r 1 70r 6 2r 4 23r 6 1r 1 2r 6 3r 1 9r 6 1r 5 17r 6 9r 2 8r 6 3r 1 47r 6 45r 1 72r 6 2r 4 23r 6 1 6r 6 4r 1 5r 6 5 20r 6 7r 2 5r 6 2r 1 53r 6 43r 1 70r 6 2r 4 24r 6 1 9r 6 2r 1 4r 6 1r 5 21r 6 12r 1 55r 6 43r 1 70r 6 2r 4 24r 6 1r 1 17r 6 5 24r 6 8r 1 58r 6 41r 1 70r 6 2r 4 25r 6 1r 1 16r 6 1r 5 26r 6 6r 1 59r 6 40r 1 69r 6 3r 4 25r 6 1r 1 16r 6 1r 5 28r 6 5r 1 3 1 56r 6 40r 1 69r 6 2r 4 26r 6 1r 1 16r 6 5 30r 6 4r 1 3 1r 1 56r 6 38r 1 69r 6 2r 4 27r 6 1 17r 6 1r 5 31r 6 3r 1 3 1r 1 55r 6 38r 1 68r 6 3r 4 27r 6 1 16r 6 1r 5 33r 6 2r 1 3 1r 1 56r 6 37r 1 68r 6 2r 4 27r 6 1r 1 16r 6 1r 5 34r 6 1r 1 3 2r 1 55r 6 37r 1 67r 6 3r 4 27r 6 1r 1 16r 6 1r 5 34r 6 2r 1 3 1r 1 55r 6 36r 1 68r 6 3r 4 27r 6 1r 1 16r 6 5 36r 6 1r 1 3 2r 1 55r 6 35r 1 68r 6 2r 4 28r 6 1 17r 6 5 36r 6 1r 1 3 2r 1 55r 6 35r 1 68r 6 2r 4 28r 6 1 17r 6 5 36r 6 1r 1 3 2r 1 55r 6 34r 1 68r 6 3r 4 27r 6 1r 1 17r 6 5 37r 6 1r 1 3 3r 1 54r 6 34r 1 68r 6 2r 4 28r 6 1 18r 6 5 37r 6 1r 1 3 2r 1 55r 6 33r 1 65r 3 1r 1 6 2r 4 28r 6 1 1r 6 6r 1 6 3r 1 3r 6 1r 5 37r 6 1r 1 3 2r 1 55r 6 33r 1 65r 3 1r 1 6 2r 4 27r 6 16r 1 2r 6 1r 5 37r 6 1r 1 3 2r 1 55r 6 32r 1 66r 3 1r 1 1r 6 2r 4 26r 6 3r 1 9r 6 3r 1 1r 6 1r 5 37r 6 1r 1 3 1r 1 57r 6 31r 1 66r 3 1r 1 1r 6 2r 4 25r 6 2r 1 14r 6 1r 1 6 5 38r 6 1r 1 3 1r 1 57r 6 31r 1 66r 3 1r 1 1r 6 1r 4 26r 6 2r 1 14r 6 1r 1 6 5 38r 6 1r 1 1r 3 1 57r 6 31r 1 67r 3 1 1r 6 1r 4 25r 6 2r 1 16r 6 2r 5 39r 6 1 1r 3 1 57r 6 31r 1 67r 3 1 1r 6 2r 4 24r 6 2r 1 16r 6 2r 5 39r 6 1 60r 6 31r 1 70r 6 2r 4 23r 6 3r 1 6r 3 3r 1 6r 6 1r 5 39r 6 1 61r 6 30r 1 70r 6 2r 4 23r 6 2r 1 6r 3 5r 1 5r 6 1r 5 38r 6 1 62r 6 30r 1 70r 6 2r 4 22r 6 3r 1 5r 3 7r 1 4r 6 1r 5 38r 6 1 62r 6 30r 1 70r 6 2r 4 22r 6 3r 1 4r 3 9r 1 3r 6 1r 5 38r 6 1 62r 6 30r 1 71r 6 2r 4 20r 6 4r 1 3r 3 10r 1 3r 6 1r 5 37r 6 1 63r 6 30r 1 71r 6 2r 4 20r 6 3r 1 3r 3 12r 1 2r 6 1r 5 37r 6 1 63r 6 30r 1 71r 6 3r 4 18r 6 4r 1 2r 3 14r 1 2r 6 5 37r 6 1 64r 6 29r 1 72r 6 3r 4 16r 6 4r 1 2r 3 15r 1 2r 6 5 37r 6 1 64r 6 29r 1 72r 6 3r 4 16r 6 4r 1 2r 3 16r 1 1r 6 5 36r 6 1r 1 64r 6 29r 1 73r 6 3r 4 14r 6 4r 1 3r 3 16r 1 1r 6 1r 5 35r 6 1 65r 6 29r 1 73r 6 4r 4 12r 6 4r 1 3 1 2r 3 16r 1 1r 6 1r 5 34r 6 1r 1 65r 6 29r 1 74r 6 4r 4 8r 6 6r 1 1r 3 1r 1 1r 3 16r 1 1r 6 2r 5 33r 6 1r 1 65r 6 29r 1 75r 6 19r 1 3 21r 1 2r 6 1r 5 32r 6 1r 1 66r 6 29r 1 76r 6 17r 1 1r 3 21r 1 2r 6 1r 5 32r 6 1r 1 66r 6 29r 1 77r 6 15r 1 1r 3 1r 1 1r 3 16r 1 1r 6 2r 5 33r 6 1r 1 2r 6 1r 5 32r 6 1r 1 66r 6 29r 1 78r 6 12r 1 2r 3 2r 1 3 18r 1 1r 3 1 6 2r 5 29r 6 1r 1 68r 6 29r 1 80r 6 9r 1 2r 3 1r 1 1r 3 20r 1 3r 6 3r 5 26r 6 1r 1 69r 6 29r 1 83r 6 4r 1 2r 3 2r 1 1r 3 21r 1 4r 6 2r 5 25r 6 1r 1 3 1r 1 67r 6 29r 1 90r 3 2r 1 2r 3 21r 1 4r 6 3r 5 23r 6 1r 1 3 1r 1 68r 6 29r 1 89r 3 1r 1 3r 3 23r 1 4r 6 3r 5 21r 6 1r 1 3 2r 1 68r 6 30r 1 77r 3 1r 1 6r 3 1r 1 4r 3 25r 1 4r 6 3r 5 19r 6 1r 1 3 2r 1 69r 6 30r 1 77r 3 1 14r 3 25r 1 5r 6 3r 5 16r 6 1r 1 1r 3 2r 1 70r 6 30r 1 93r 3 26r 1 5r 6 4r 5 12r 6 2r 1 1r 3 2r 1 70r 6 3r 1 82r 6 37r 1 92r 3 25r 1 97r 6 39r 1 91r 3 25r 1 96r 6 41r 1 91r 3 23r 1 96r 6 43r 1 91r 3 21r 1 96r 6 45r 1 91r 3 19r 1 95r 6 48r 1 92r 3 15r 1 95r 6 52r 1 95r 3 9r 1 95r 6 54r 1 198r 6 57r 1 196r 6 60r 1 193r 6 62r 1 190r 6 65r 1 187r 6 69r 1 183r 6 73r 1 179r 6 77r 1 175r 6 82r 1 169r 6 88r 1 164r 6 93r 1 159r 6 99r 1 152r 6 106r 1 66r 6 4r 1 74r 6 113r 1 58r 6 11r 1 67r 6 120r 1 50r 6 19r 1 59r 6 131r 1 40r 6 26r 1 51r 6 152r 1 18r 6 35r 1 42r 6 217r 1 28r 6 39884r 2 4r 6 242r 2 19r 6 231r 2 30r 6 220r 2 40r 6 211r 2 16r 3 2r 2 3 4r 2 21r 6 205r 2 11r 3 18r 2 22r 6 198r 2 13r 3 21r 2 23r 6 191r 2 13r 3 1r 2 3 24r 2 24r 6 185r 2 15r 3 3r 2 6r 3 19r 2 24r 6 181r 2 16r 3 3r 2 11r 3 17r 2 24r 6 176r 2 18r 3 2r 2 16r 3 15r 2 25r 6 172r 2 19r 3 1r 2 19r 3 2 6r 3 8r 2 25r 6 168r 2 20r 3 1r 2 12r 6 4r 2 16r 3 2r 2 27r 6 163r 2 22r 3 1r 2 9r 6 13r 2 17r 3 2r 2 23r 6 107r 1 12r 6 37r 2 24r 3 1r 2 8r 6 19r 2 11r 3 5r 2 23r 6 103r 1 20r 6 32r 2 23r 3 1r 2 6r 6 10r 1 5r 6 8r 2 9r 3 5r 2 24r 6 100r 1 25r 6 22r 1 3r 6 3r 2 20r 3 2 5r 6 9r 1 12r 6 7r 2 8r 3 1r 2 2r 3 2 26r 6 96r 1 33r 6 11r 1 10r 6 2r 2 17r 3 2 2r 6 11r 1 17r 6 6r 2 7r 3 2 2r 3 3r 2 25r 6 93r 1 60r 6 1r 2 13r 3 1r 2 6 14r 1 19r 6 5r 2 10r 3 4r 2 26r 6 90r 1 64r 6 2 11r 3 6 16r 1 19r 6 6r 2 10r 3 4r 2 27r 6 87r 1 66r 6 2 10r 6 3r 4 10r 6 3r 1 19r 6 2r 5 1r 6 2r 2 9r 3 3r 2 28r 6 86r 1 68r 6 2 8r 6 1r 4 13r 6 2r 1 19r 6 1r 5 3r 6 2r 2 9r 3 2r 2 27r 6 86r 1 70r 6 2 6r 6 4 16r 6 1r 1 19r 6 5 5r 6 3r 2 9r 3 2 25r 6 4r 1 5r 6 77r 1 72r 6 2 3r 4 19r 6 1r 1 17r 6 2r 5 6r 6 3r 2 31r 6 6r 1 11r 6 72r 1 73r 6 3r 4 19r 6 4r 1 14r 6 1r 5 10r 6 3r 2 24r 6 6r 1 1r 6 1 34r 6 49r 1 70r 3 1r 1 2r 6 2r 4 19r 6 2r 1 6 4r 1 11r 6 5 12r 6 3r 2 19r 6 3r 1 46r 6 46r 1 69r 3 2r 1 2r 6 4 21r 6 2r 1 2r 6 4r 1 8r 6 1r 5 13r 6 3r 2 16r 6 2r 1 51r 6 44r 1 68r 3 2r 1 2r 6 4 23r 6 1r 1 6r 6 4r 1 4r 6 1r 5 14r 6 12r 2 4r 6 2r 1 54r 6 42r 1 73r 6 1r 4 24r 6 1 9r 6 2r 1 4r 6 1r 5 16r 6 11r 2 1r 6 1r 1 58r 6 41r 1 72r 6 2r 4 24r 6 1 17r 6 5 18r 6 13r 1 60r 6 40r 1 72r 6 1r 4 25r 6 1 16r 6 1r 5 20r 6 11r 1 60r 6 39r 1 72r 6 2r 4 25r 6 1 16r 6 1r 5 21r 6 11r 1 60r 6 38r 1 71r 6 2r 4 26r 6 1 16r 6 1r 5 23r 6 9r 1 60r 6 38r 1 71r 6 2r 4 26r 6 1 16r 6 5 28r 6 6r 1 60r 6 37r 1 70r 6 3r 4 25r 6 1r 1 15r 6 1r 5 30r 6 4r 1 60r 6 36r 1 70r 6 3r 4 26r 6 1r 1 15r 6 1r 5 32r 6 2r 1 1r 3 1 57r 6 36r 1 70r 6 3r 4 26r 6 1 16r 6 5 34r 6 2r 1 3 1r 1 57r 6 35r 1 69r 6 3r 4 26r 6 1r 1 16r 6 5 35r 6 1r 1 3 1r 1 57r 6 34r 1 70r 6 3r 4 26r 6 1r 1 15r 6 5 37r 6 1 3 2r 1 56r 6 34r 1 69r 6 3r 4 27r 6 1 16r 6 5 37r 6 1 1r 3 1r 1 57r 6 33r 1 69r 6 3r 4 26r 6 1r 1 16r 6 5 37r 6 1r 1 3 2r 1 56r 6 32r 1 70r 6 3r 4 26r 6 1r 1 2r 6 1r 1 11r 6 5 37r 6 1r 1 3 2r 1 56r 6 32r 1 70r 6 3r 4 25r 6 16r 1 2r 6 5 37r 6 1r 1 3 2r 1 56r 6 32r 1 67r 3 1 1r 6 2r 4 26r 6 17r 1 1r 6 5 37r 6 1r 1 3 2r 1 57r 6 31r 1 66r 3 2r 1 6 2r 4 25r 6 3r 1 12r 6 2r 1 5 38r 6 1r 1 3 2r 1 57r 6 31r 1 66r 3 2r 1 6 2r 4 25r 6 2r 1 14r 6 2r 5 38r 6 1r 1 3 2r 1 57r 6 31r 1 67r 3 2r 1 6 1r 4 25r 6 2r 1 15r 6 1r 5 38r 6 1r 1 3 2r 1 57r 6 30r 1 68r 3 2r 1 6 1r 4 24r 6 2r 1 16r 6 1r 5 38r 6 1r 1 3 2r 1 58r 6 29r 1 68r 3 2r 1 6 2r 4 23r 6 2r 1 7r 3 1 8r 6 5 38r 6 1r 1 3 1r 1 59r 6 29r 1 69r 3 1 1r 6 2r 4 22r 6 2r 1 6r 3 5r 1 5r 6 5 38r 6 1r 1 3 1r 1 59r 6 29r 1 69r 3 1 1r 6 2r 4 21r 6 3r 1 5r 3 7r 1 4r 6 5 38r 6 1r 1 3 1r 1 59r 6 29r 1 72r 6 2r 4 21r 6 3r 1 4r 3 8r 1 4r 6 5 38r 6 1 1r 3 1 60r 6 29r 1 72r 6 2r 4 20r 6 4r 1 3r 3 10r 1 3r 6 5 38r 6 1 1r 3 1 60r 6 29r 1 73r 6 2r 4 19r 6 3r 1 2r 3 13r 1 3r 6 5 36r 6 1r 1 3 1r 1 61r 6 28r 1 73r 6 2r 4 18r 6 4r 1 1r 3 14r 1 3r 6 5 36r 6 1r 1 3 1 62r 6 28r 1 74r 6 1r 4 17r 6 4r 1 1r 3 16r 1 2r 6 5 36r 6 1r 1 64r 6 28r 1 74r 6 2r 4 15r 6 5r 1 1r 3 16r 1 2r 6 1r 5 35r 6 1 65r 6 28r 1 74r 6 3r 4 13r 6 5r 1 2r 3 17r 1 1r 6 1r 5 34r 6 1r 1 65r 6 28r 1 75r 6 3r 4 11r 6 5r 1 3r 3 17r 1 1r 6 1r 5 34r 6 1r 1 65r 6 29r 1 75r 6 4r 4 8r 6 6r 1 3 1 1r 3 17r 1 2r 6 5 33r 6 1r 1 66r 6 29r 1 75r 6 7r 4 1r 6 9r 1 1r 3 1r 1 3 17r 1 2r 6 2r 6 1r 5 32r 6 1r 1 66r 6 29r 1 76r 6 17r 1 1r 3 21r 1 2r 6 1r 5 31r 6 1r 1 67r 6 29r 1 77r 6 15r 1 1r 3 21r 1 3r 6 1r 5 30r 6 1r 1 68r 6 29r 1 78r 6 13r 1 1r 3 20r 1 3r 6 3r 5 25r 6 1r 1 70r 6 29r 1 90r 3 3r 1 1r 3 20r 1 1r 3 1 2r 6 3r 5 23r 6 1r 1 71r 6 29r 1 88r 3 3r 1 3r 3 21r 1 3 1 3r 6 3r 5 21r 6 1r 1 72r 6 29r 1 80r 3 1 1r 3 7r 1 3r 3 24r 1 3r 6 4r 5 18r 6 2r 1 1r 3 1r 1 69r 6 29r 1 83r 3 5r 1 5r 3 24r 1 4r 6 4r 5 16r 6 2r 1 1r 3 1r 1 70r 6 30r 1 80r 3 1r 1 10r 3 24r 1 6r 6 4r 5 13r 6 3r 1 3 2r 1 71r 6 30r 1 93r 3 25r 1 6r 6 5r 5 8r 6 4r 1 1r 3 2r 1 72r 6 30r 1 93r 3 26r 1 7r 6 15r 1 1r 3 2r 1 73r 6 32r 1 93r 3 26r 1 7r 6 12r 1 2r 3 2r 1 74r 6 33r 1 92r 3 26r 1 10r 6 6r 1 4r 3 1r 1 75r 6 34r 1 93r 3 26r 1 20r 3 1r 1 76r 6 35r 1 93r 3 25r 1 98r 6 37r 1 93r 3 24r 1 97r 6 39r 1 93r 3 22r 1 97r 6 41r 1 92r 3 21r 1 96r 6 45r 1 92r 3 17r 1 97r 6 47r 1 93r 3 14r 1 96r 6 51r 1 201r 6 54r 1 198r 6 57r 1 196r 6 60r 1 193r 6 62r 1 190r 6 65r 1 187r 6 69r 1 183r 6 73r 1 179r 6 77r 1 175r 6 82r 1 169r 6 88r 1 164r 6 93r 1 159r 6 99r 1 152r 6 106r 1 65r 6 6r 1 73r 6 114r 1 56r 6 13r 1 65r 6 122r 1 49r 6 20r 1 58r 6 133r 1 37r 6 28r 1 49r 6 159r 1 10r 6 38r 1 40r 6 219r 1 24r 6 40136r 2 16r 6 233r 2 27r 6 224r 2 36r 6 215r 2 44r 6 207r 2 16r 3 9r 2 24r 6 201r 2 11r 3 21r 2 22r 6 195r 2 14r 3 23r 2 23r 6 190r 2 13r 3 28r 2 23r 6 185r 2 15r 3 2r 2 1r 3 25r 2 25r 6 179r 2 30r 3 20r 2 25r 6 175r 2 37r 3 17r 2 25r 6 171r 2 40r 3 1r 2 4r 3 10r 2 26r 6 166r 2 35r 6 1r 2 17r 3 6r 2 26r 6 109r 1 12r 6 39r 2 35r 6 10r 2 3r 6

2 9r 3 8r 2 23r 6 104r 1 20r 6 33r 2 35r 6 20r 2 8r 3 6r 2 24r 6
101r 1 26r 6 21r 1 5r 6 1r 2 31r 6 24r 2 9r 3 5r 2 25r 6 97r 1
34r 6 12r 1 10r 6 2r 2 25r 6 9r 1 13r 6 5r 2 8r 3 1r 2 1r 3
2r 2 25r 6 94r 1 62r 6 1r 2 20r 6 9r 1 18r 6 5r 2 11r 3 3r 2
25r 6 91r 1 65r 6 2 16r 6 12r 1 20r 6 5r 2 10r 3 3r 2 26r 6
89r 1 66r 6 1r 2 11r 6 3r 4 5r 6 5r 1 20r 6 6r 2 9r 3 4r 2 25r 6
88r 1 69r 6 1r 2 8r 6 3r 4 8r 6 3r 1 20r 6 4r 5 6 1r 2 9r 3
3r 2 24r 6 89r 1 71r 6 2 5r 6 2r 4 13r 6 2r 1 19r 6 2r 5 3r 6
2r 2 7r 3 3r 2 22r 6 5r 1 5r 6 78r 1 74r 6 2 2r 6 1r 4 16r 6
3r 1 17r 6 2r 5 5r 6 1r 2 8r 3 1r 2 17r 6 8r 1 13r 6 72r 1 76r 6
2r 4 17r 6 7r 1 13r 6 1r 5 7r 6 1r 2 23r 6 9r 1 6 1r 1 38r 6
47r 1 73r 3 1 1r 6 1r 4 19r 6 1r 1 2r 6 3r 1 11r 6 1r 5 8r 6
2r 2 19r 6 7r 1 4r 6 1 41r 6 44r 1 71r 3 2r 1 2r 6 1r 4 19r 6
1r 1 4r 6 4r 1 8r 6 5 10r 6 2r 2 17r 6 4r 1 53r 6 42r 1 70r 3
2r 1 2r 6 1r 4 20r 6 1r 1 8r 6 3r 1 5r 6 5 12r 6 13r 2 2r 6
2r 1 58r 6 41r 1 68r 3 4r 1 1r 6 1r 4 21r 6 1r 1 10r 6 1r 1
4r 6 5 15r 6 15r 1 61r 6 39r 1 69r 3 3r 1 1r 6 2r 4 21r 6 1r 1
17r 6 5 16r 6 13r 1 62r 6 39r 1 68r 3 3r 1 1r 6 2r 4 22r 6 1r 1
16r 6 1r 5 17r 6 12r 1 63r 6 38r 1 68r 3 2r 1 2r 6 2r 4 22r 6
1r 1 16r 6 5 19r 6 11r 1 63r 6 37r 1 69r 3 2r 1 1r 6 2r 4 23r 6
1r 1 16r 6 5 21r 6 10r 1 63r 6 36r 1 69r 3 1 2r 6 3r 4 23r 6
1r 1 16r 6 5 22r 6 10r 1 62r 6 36r 1 73r 6 2r 4 24r 6 1r 1 15r 6
1r 5 24r 6 9r 1 62r 6 35r 1 72r 6 3r 4 24r 6 1r 1 15r 6 5 27r 6
7r 1 62r 6 34r 1 72r 6 3r 4 25r 6 1r 1 15r 6 5 28r 6 6r 1 62r 6
34r 1 72r 6 3r 4 25r 6 1 15r 6 1r 5 30r 6 5r 1 62r 6 33r 1 71r 6
4r 4 24r 6 1r 1 15r 6 1r 5 31r 6 4r 1 62r 6 32r 1 72r 6 3r 4
25r 6 1r 1 15r 6 1r 5 32r 6 4r 1 61r 6 32r 1 71r 6 4r 4 24r 6
1r 1 2r 6 1 12r 6 5 34r 6 3r 1 61r 6 32r 1 71r 6 4r 4 24r 6
14r 1 3r 6 5 34r 6 3r 1 1r 3 1r 1 58r 6 31r 1 71r 6 4r 4 23r 6
16r 1 2r 6 5 35r 6 2r 1 1r 3 1r 1 58r 6 30r 1 72r 6 4r 4 23r 6
3r 1 10r 6 2r 1 6 1r 5 35r 6 2r 1 1r 3 1r 1 58r 6 30r 1 72r 6
4r 4 22r 6 3r 1 13r 6 3r 5 36r 6 1r 1 3 2r 1 58r 6 30r 1 68r 3
1 2r 6 4r 4 22r 6 2r 1 15r 6 2r 5 36r 6 1r 1 3 2r 1 59r 6 29r 1
68r 3 2r 1 6 4r 4 22r 6 1r 1 16r 6 2r 5 36r 6 1r 1 3 2r 1 59r 6
29r 1 68r 3 2r 1 1r 6 4r 4 20r 6 2r 1 16r 6 2r 5 36r 6 1r 1
3 2r 1 59r 6 29r 1 69r 3 2r 1 6 4r 4 19r 6 2r 1 7r 3 3r 1 6r 6
1r 5 36r 6 1r 1 3 2r 1 59r 6 29r 1 69r 3 2r 1 6 4r 4 19r 6 2r 1
5r 3 7r 1 4r 6 1r 5 36r 6 1r 1 3 2r 1 59r 6 29r 1 69r 3 2r 1
6 4r 4 18r 6 3r 1 4r 3 8r 1 4r 6 1r 5 36r 6 1r 1 3 1r 1 61r 6
28r 1 70r 3 1r 1 1r 6 3r 4 18r 6 2r 1 4r 3 10r 1 4r 6 5 36r 6
1r 1 3 1r 1 61r 6 28r 1 70r 3 1r 1 1r 6 3r 4 17r 6 3r 1 2r 3
13r 1 3r 6 5 36r 6 1 1r 3 1r 1 61r 6 28r 1 74r 6 4r 4 15r 6
4r 1 1r 3 14r 1 3r 6 5 36r 6 1 3 2r 1 61r 6 28r 1 74r 6 5r 4
13r 6 4r 1 1r 3 16r 1 2r 6 1r 5 34r 6 1r 1 3 1r 1 62r 6 28r 1
75r 6 5r 4 11r 6 5r 1 1r 3 16r 1 2r 6 1r 5 34r 6 1r 1 3 1r 1
62r 6 28r 1 75r 6 7r 4 8r 6 5r 1 1r 3 18r 1 1r 6 1r 5 34r 6
1r 1 3 1 63r 6 28r 1 76r 6 9r 4 1r 6 8r 1 1r 3 19r 1 1r 6 1r 5
33r 6 1r 1 1r 3 1 63r 6 28r 1 76r 6 20r 1 1r 3 19r 1 2r 6 5
33r 6 1r 1 67r 6 27r 1 77r 6 18r 1 2r 3 20r 1 1r 6 5 32r 6 1r 1
68r 6 27r 1 78r 6 16r 1 2r 3 21r 1 1r 6 1r 5 30r 6 2r 1 68r 6
27r 1 79r 6 14r 1 2r 3 21r 1 2r 6 1r 5 30r 6 1r 1 69r 6 27r 1
80r 6 12r 1 2r 3 22r 1 2r 6 1r 5 29r 6 1r 1 70r 6 27r 1 82r 6
8r 1 3r 3 22r 1 1r 3 1r 1 6 1r 5 27r 6 1r 1 71r 6 27r 1 85r 6
4r 1 3r 3 23r 1 1r 3 1r 1 6 2r 5 25r 6 1r 1 72r 6 27r 1 92r 3

3r 1 1r 3 19r 1 1r 3 1 2r 6 2r 5 23r 6 2r 1 72r 6 27r 1 90r 3
2r 1 3r 3 20r 1 3 2r 1 1r 6 3r 5 22r 6 1r 1 73r 6 28r 1 84r 3
6r 1 3r 3 25r 1 2r 6 3r 5 20r 6 1r 1 74r 6 28r 1 83r 3 5r 1
5r 3 25r 1 3r 6 3r 5 17r 6 2r 1 75r 6 28r 1 83r 3 4r 1 5r 3
26r 1 4r 6 3r 5 15r 6 2r 1 76r 6 28r 1 83r 3 2r 1 7r 3 24r 1
7r 6 4r 5 10r 6 3r 1 77r 6 30r 1 93r 3 25r 1 7r 6 5r 5 7r 6
2r 1 3r 3 1 74r 6 30r 1 93r 3 25r 1 9r 6 12r 1 3r 3 1r 1 75r 6
31r 1 93r 3 25r 1 10r 6 7r 1 4r 3 2r 1 75r 6 32r 1 93r 3 26r 1
20r 3 2r 1 77r 6 33r 1 93r 3 25r 1 19r 3 2r 1 77r 6 35r 1 93r 3
24r 1 18r 3 1r 1 78r 6 37r 1 93r 3 23r 1 98r 6 39r 1 93r 3 20r 1
99r 6 41r 1 93r 3 18r 1 98r 6 45r 1 93r 3 15r 1 98r 6 47r 1
96r 3 6r 1 101r 6 51r 1 201r 6 54r 1 198r 6 58r 1 195r 6 60r 1
193r 6 62r 1 190r 6 65r 1 187r 6 69r 1 183r 6 73r 1 179r 6 77r 1
174r 6 83r 1 169r 6 88r 1 163r 6 95r 1 157r 6 101r 1 151r 6
107r 1 63r 6 8r 1 71r 6 115r 1 55r 6 15r 1 64r 6 123r 1 47r 6
22r 1 56r 6 137r 1 33r 6 30r 1 47r 6 211r 1 37r 6 223r 1 16r 6
40142r 2 15r 6 234r 2 26r 6 225r 2 35r 6 216r 2 42r 6 210r 2
15r 3 7r 2 25r 6 202r 2 11r 3 19r 2 23r 6 197r 2 12r 3 22r 2
24r 6 192r 2 14r 3 25r 2 23r 6 187r 2 18r 3 25r 2 24r 6 182r 2
23r 3 1r 2 1r 3 21r 2 25r 6 177r 2 30r 3 22r 2 25r 6 173r 2
25r 3 2r 2 7r 3 20r 2 25r 6 169r 2 26r 3 3r 2 9r 3 19r 2 25r 6
109r 1 13r 6 41r 2 31r 3 1r 2 11r 3 2 7r 3 8r 2 27r 6 104r 1
21r 6 35r 2 37r 6 7r 2 6r 6 2 8r 3 1r 2 1r 3 1r 2 25r 6 101r 1
27r 6 21r 1 6r 6 1r 2 33r 6 19r 2 11r 3 4r 2 25r 6 98r 1 35r 6
8r 1 15r 6 2 28r 6 25r 2 9r 3 5r 2 25r 6 95r 1 63r 2 25r 6 29r 2
8r 3 5r 2 26r 6 92r 1 66r 2 20r 6 33r 2 11r 3 3r 2 25r 6 90r 1
68r 6 1r 2 14r 6 16r 1 11r 6 8r 2 11r 3 3r 2 24r 6 89r 1 70r 6
2r 2 9r 6 16r 1 18r 6 5r 2 10r 3 3r 2 22r 6 91r 1 72r 6 2r 2
4r 6 5r 4 4r 6 8r 1 19r 6 5r 2 9r 3 4r 2 17r 6 7r 1 6r 6 80r 1
74r 6 2r 2 6 4r 4 11r 6 7r 1 16r 6 5r 2 11r 3 2r 2 13r 6 10r 1
14r 6 11r 1 6r 6 53r 1 77r 6 5r 4 13r 6 3r 1 6 4r 1 13r 6 5
3r 6 2r 2 10r 3 1r 2 11r 6 8r 1 45r 6 45r 1 77r 6 4r 4 15r 6
2r 1 3r 6 4r 1 9r 6 1r 5 4r 6 2r 2 22r 6 5r 1 51r 6 43r 1 75r 3
1 1r 6 2r 4 16r 6 2r 1 6r 6 4r 1 6r 6 1r 5 6r 6 2r 2 12r 6 1r 2
3r 6 4r 1 55r 6 41r 1 75r 3 1 1r 6 2r 4 18r 6 1r 1 9r 6 2r 1
5r 6 1r 5 7r 6 2r 2 6r 6 12r 1 59r 6 40r 1 74r 3 1 1r 6 2r 4
19r 6 1r 1 18r 6 5 10r 6 18r 1 62r 6 39r 1 70r 3 3r 1 2r 6 1r 4
20r 6 1r 1 17r 6 5 12r 6 9r 1 3r 6 1 66r 6 37r 1 70r 3 4r 1
1r 6 1r 4 21r 6 1r 1 17r 6 5 13r 6 8r 1 71r 6 37r 1 70r 3 3r 1
1r 6 2r 4 21r 6 1r 1 16r 6 1r 5 14r 6 7r 1 72r 6 36r 1 69r 3
4r 1 1r 6 1r 4 22r 6 1r 1 16r 6 1r 5 15r 6 7r 1 71r 6 35r 1
70r 3 3r 1 1r 6 2r 4 22r 6 1r 1 16r 6 5 17r 6 8r 1 70r 6 34r 1
70r 3 2r 1 1r 6 2r 4 23r 6 1r 1 15r 6 1r 5 18r 6 9r 1 68r 6
34r 1 70r 3 1 3r 6 2r 4 23r 6 1r 1 15r 6 1r 5 19r 6 12r 1 64r 6
33r 1 75r 6 3r 4 22r 6 2r 1 14r 6 1r 5 22r 6 11r 1 64r 6 32r 1
74r 6 3r 4 23r 6 1r 1 15r 6 1r 5 24r 6 9r 1 64r 6 32r 1 74r 6
3r 4 23r 6 1r 1 15r 6 5 27r 6 8r 1 63r 6 32r 1 73r 6 4r 4 22r 6
2r 1 15r 6 5 29r 6 6r 1 64r 6 30r 1 74r 6 4r 4 22r 6 13r 1 4r 6
5 30r 6 5r 1 64r 6 30r 1 74r 6 4r 4 21r 6 16r 1 1r 6 1r 5 32r 6
4r 1 63r 6 30r 1 74r 6 4r 4 21r 6 4r 1 4r 6 7r 1 6 1r 5 33r 6
3r 1 63r 6 30r 1 74r 6 4r 4 20r 6 3r 1 13r 6 3r 5 33r 6 3r 1
64r 6 29r 1 73r 6 5r 4 19r 6 3r 1 15r 6 2r 5 33r 6 3r 1 64r 6
28r 1 74r 6 5r 4 19r 6 2r 1 16r 6 2r 5 34r 6 2r 1 64r 6 28r 1
75r 6 4r 4 18r 6 2r 1 17r 6 2r 5 34r 6 2r 1 2r 3 1 60r 6 28r 1

70r 3 1r 1 2r 6 4r 4 17r 6 3r 1 7r 3 1r 1 8r 6 1r 5 35r 6 1r 1
1r 3 1r 1 61r 6 27r 1 70r 3 2r 1 1r 6 4r 4 16r 6 4r 1 5r 3 6r 1
5r 6 1r 5 35r 6 1r 1 1r 3 1r 1 61r 6 27r 1 71r 3 2r 1 6 4r 4
15r 6 4r 1 5r 3 8r 1 4r 6 1r 5 35r 6 1r 1 1r 3 1r 1 61r 6 27r 1
71r 3 2r 1 1r 6 3r 4 15r 6 4r 1 4r 3 10r 1 4r 6 5 35r 6 1r 1
3 1r 1 62r 6 27r 1 72r 3 1r 1 1r 6 4r 4 13r 6 5r 1 3r 3 11r 1
4r 6 5 35r 6 1r 1 3 1r 1 62r 6 27r 1 72r 3 1r 1 1r 6 4r 4 12r 6
5r 1 3r 3 13r 1 3r 6 5 35r 6 1 1r 3 1r 1 62r 6 27r 1 73r 3 1
2r 6 4r 4 10r 6 6r 1 2r 3 15r 1 2r 6 1r 5 34r 6 1 1r 3 1r 1
62r 6 27r 1 77r 6 5r 4 7r 6 7r 1 2r 3 16r 1 2r 6 1r 5 33r 6
1r 1 3 2r 1 62r 6 27r 1 77r 6 7r 4 3r 6 9r 1 2r 3 17r 1 1r 6
1r 5 33r 6 1r 1 3 1r 1 64r 6 26r 1 77r 6 20r 1 2r 3 18r 1 2r 6
1r 5 32r 6 1r 1 3 1r 1 64r 6 26r 1 78r 6 18r 1 3r 3 19r 1 1r 6
1r 5 31r 6 1r 1 3 2r 1 64r 6 26r 1 79r 6 17r 1 2r 3 20r 1 1r 6
1r 5 31r 6 1r 1 3 1r 1 65r 6 27r 1 79r 6 15r 1 2r 3 21r 1 1r 6
1r 5 30r 6 1r 1 1r 3 1 66r 6 27r 1 80r 6 13r 1 2r 3 22r 1 1r 6
2r 5 28r 6 1r 1 70r 6 27r 1 81r 6 11r 1 3r 3 22r 1 2r 6 1r 5
28r 6 1r 1 70r 6 27r 1 83r 6 7r 1 4r 3 22r 1 3r 6 2r 5 26r 6
1r 1 71r 6 27r 1 86r 6 3r 1 4r 3 23r 1 3r 6 3r 5 24r 6 1r 1
72r 6 27r 1 94r 3 23r 1 5r 6 2r 5 23r 6 1r 1 73r 6 27r 1 93r 3
24r 1 1r 3 1 2r 6 3r 5 21r 6 1r 1 74r 6 27r 1 96r 3 22r 1 3
1r 1 2r 6 4r 5 18r 6 1r 1 75r 6 27r 1 87r 3 1 6r 3 23r 1 3 1r 1
3r 6 4r 5 16r 6 2r 1 75r 6 27r 1 85r 3 2r 1 5r 3 25r 1 3 1r 1
3r 6 5r 5 11r 6 3r 1 77r 6 28r 1 84r 3 1r 1 6r 3 25r 1 3 1r 1
4r 6 5r 5 9r 6 3r 1 78r 6 28r 1 94r 3 24r 1 1r 3 1r 1 4r 6 16r 1
80r 6 28r 1 94r 3 25r 1 9r 6 11r 1 82r 6 30r 1 94r 3 24r 1 11r 6
7r 1 84r 6 30r 1 94r 3 25r 1 22r 3 1 78r 6 32r 1 94r 3 24r 1
20r 3 2r 1 78r 6 33r 1 94r 3 24r 1 17r 3 2r 1 79r 6 35r 1 94r 3
22r 1 15r 3 3r 1 80r 6 37r 1 94r 3 20r 1 13r 3 4r 1 81r 6 39r 1
94r 3 18r 1 100r 6 41r 1 95r 3 14r 1 100r 6 45r 1 96r 3 7r 1
102r 6 48r 1 204r 6 52r 1 200r 6 55r 1 198r 6 58r 1 195r 6 60r 1
193r 6 62r 1 189r 6 67r 1 185r 6 70r 1 182r 6 74r 1 178r 6 79r 1
173r 6 84r 1 167r 6 90r 1 162r 6 96r 1 156r 6 102r 1 69r 6 2r 1
76r 6 109r 1 61r 6 10r 1 69r 6 117r 1 53r 6 17r 1 62r 6 125r 1
45r 6 24r 1 54r 6 144r 1 26r 6 32r 1 45r 6 213r 1 32r 6 230r 1
6r 6 40148r 2 16r 6 233r 2 26r 6 225r 2 35r 6 217r 2 42r 6 209r 2
49r 6 203r 2 13r 3 12r 2 27r 6 198r 2 12r 3 21r 2 24r 6 193r 2
14r 3 25r 2 22r 6 189r 2 16r 3 26r 2 23r 6 184r 2 20r 3 3r 2
1r 3 21r 2 24r 6 179r 2 19r 3 6r 2 2r 3 21r 2 25r 6 175r 2 18r 3
10r 2 2r 3 22r 2 25r 6 117r 1 6 52r 2 23r 3 8r 2 2r 3 22r 2
26r 6 109r 1 14r 6 41r 2 28r 3 7r 2 4r 3 15r 2 31r 6 105r 1
22r 6 35r 2 31r 3 3r 2 10r 3 2 4r 3 2r 2 36r 6 102r 1 28r 6
23r 1 5r 6 2 36r 6 9r 2 6 1r 2 6 1r 2 41r 6 98r 1 36r 6 14r 1
11r 6 2 30r 6 19r 2 42r 6 95r 1 66r 6 2 24r 6 24r 2 43r 6 92r 1
68r 6 2 21r 6 28r 2 13r 3 1r 2 26r 6 90r 1 70r 6 1r 2 17r 6
13r 1 7r 6 9r 2 12r 3 3r 2 23r 6 91r 1 72r 6 2 14r 6 13r 1 13r 6
6r 2 12r 3 3r 2 20r 6 5r 1 1r 6 84r 1 74r 6 1r 2 8r 6 19r 1
14r 6 4r 2 11r 3 3r 2 15r 6 8r 1 6r 6 81r 1 77r 6 1r 2 1r 6
6r 4 7r 6 10r 1 13r 6 5r 2 10r 3 3r 2 12r 6 4r 1 18r 6 12r 1
10r 6 50r 1 79r 6 7r 4 10r 6 2r 1 2r 6 4r 1 12r 6 6r 2 10r 3
2r 2 10r 6 4r 1 51r 6 43r 1 81r 6 2r 4 13r 6 2r 1 5r 6 5r 1
7r 6 9r 2 9r 3 1r 2 8r 6 2r 1 57r 6 41r 1 80r 6 2r 4 15r 6 2r 1
7r 6 3r 1 6r 6 11r 2 17r 6 2r 1 59r 6 40r 1 79r 6 1r 4 17r 6
2r 1 10r 6 1 6r 6 2r 5 4r 6 14r 1 6 6r 1 62r 6 38r 1 79r 6 1r 4

18r 6 2r 1 17r 6 2r 5 7r 6 8r 1 8r 6 1 65r 6 37r 1 79r 6 1r 4
18r 6 2r 1 17r 6 2r 5 8r 6 4r 1 78r 6 37r 1 75r 3 1r 1 6 1r 4
19r 6 2r 1 16r 6 3r 5 9r 6 4r 1 78r 6 35r 1 73r 3 1 3 1r 1 6
2r 4 19r 6 2r 1 16r 6 2r 5 12r 6 4r 1 76r 6 35r 1 72r 3 3r 1
1r 6 1r 4 20r 6 2r 1 15r 6 2r 5 14r 6 4r 1 76r 6 34r 1 71r 3
4r 1 6 1r 4 21r 6 2r 1 15r 6 2r 5 16r 6 3r 1 75r 6 33r 1 71r 3
4r 1 1r 6 1r 4 21r 6 2r 1 15r 6 1r 5 18r 6 5r 1 73r 6 32r 1
71r 3 4r 1 1r 6 1r 4 21r 6 2r 1 15r 6 1r 5 19r 6 6r 1 71r 6
32r 1 71r 3 3r 1 1r 6 1r 4 22r 6 1r 1 15r 6 2r 5 20r 6 6r 1
70r 6 31r 1 72r 3 2r 1 1r 6 2r 4 22r 6 1r 1 15r 6 1r 5 22r 6
7r 1 68r 6 31r 1 73r 3 1 2r 6 1r 4 22r 6 2r 1 15r 6 1r 5 24r 6
6r 1 68r 6 30r 1 77r 6 1r 4 22r 6 14r 1 3r 6 1r 5 25r 6 7r 1
66r 6 30r 1 76r 6 2r 4 22r 6 16r 1 1r 6 1r 5 27r 6 6r 1 65r 6
29r 1 77r 6 2r 4 21r 6 4r 1 2r 6 9r 1 6 2r 5 27r 6 6r 1 66r 6
28r 1 76r 6 3r 4 21r 6 2r 1 12r 6 5r 5 28r 6 5r 1 66r 6 28r 1
76r 6 3r 4 20r 6 2r 1 14r 6 4r 5 28r 6 6r 1 65r 6 28r 1 76r 6
3r 4 19r 6 2r 1 16r 6 3r 5 29r 6 5r 1 65r 6 28r 1 76r 6 4r 4
18r 6 2r 1 17r 6 2r 5 29r 6 5r 1 66r 6 27r 1 76r 6 4r 4 17r 6
2r 1 7r 3 1r 1 8r 6 3r 5 29r 6 4r 1 66r 6 27r 1 76r 6 4r 4 16r 6
3r 1 5r 3 6r 1 5r 6 3r 5 29r 6 4r 1 66r 6 27r 1 76r 6 4r 4 15r 6
3r 1 5r 3 8r 1 4r 6 3r 5 30r 6 3r 1 66r 6 27r 1 77r 6 3r 4 15r 6
2r 1 5r 3 10r 1 4r 6 2r 5 30r 6 3r 1 66r 6 27r 1 72r 3 1r 1
2r 6 4r 4 12r 6 4r 1 4r 3 11r 1 4r 6 2r 5 30r 6 3r 1 66r 6 27r 1
73r 3 2r 1 6 4r 4 11r 6 5r 1 3r 3 13r 1 3r 6 2r 5 30r 6 3r 1
66r 6 27r 1 73r 3 2r 1 1r 6 4r 4 9r 6 5r 1 3r 3 15r 1 2r 6 2r 5
31r 6 2r 1 67r 6 26r 1 74r 3 2r 1 6 6r 4 6r 6 6r 1 1r 3 1 3
15r 1 3r 6 1r 5 30r 6 2r 1 68r 6 26r 1 74r 3 2r 1 1r 6 18r 1
1r 3 19r 1 2r 6 1r 5 30r 6 2r 1 1r 3 1r 1 64r 6 26r 1 75r 3
1 2r 6 17r 1 4r 3 17r 1 2r 6 1r 5 30r 6 2r 1 3 2r 1 64r 6 26r 1
80r 6 15r 1 4r 3 19r 1 1r 6 1r 5 30r 6 2r 1 3 1r 1 65r 6 26r 1
80r 6 15r 1 4r 3 19r 1 1r 6 1r 5 29r 6 2r 1 3 2r 1 65r 6 26r 1
81r 6 13r 1 4r 3 20r 1 1r 6 2r 5 28r 6 2r 1 3 1r 1 66r 6 26r 1
83r 6 10r 1 4r 3 22r 1 1r 6 1r 5 27r 6 2r 1 3 2r 1 66r 6 26r 1
84r 6 7r 1 5r 3 23r 1 1r 6 1r 5 27r 6 1r 1 1r 3 1r 1 67r 6 26r 1
87r 6 3r 1 5r 3 24r 1 1r 6 2r 5 25r 6 2r 1 3 1r 1 68r 6 26r 1
96r 3 25r 1 2r 6 1r 5 24r 6 2r 1 1r 3 1 69r 6 26r 1 96r 3 25r 1
2r 6 2r 5 23r 6 2r 1 72r 6 26r 1 95r 3 24r 1 5r 6 1r 5 22r 6
2r 1 73r 6 27r 1 94r 3 24r 1 5r 6 2r 5 19r 6 3r 1 74r 6 27r 1
94r 3 24r 1 6r 6 3r 5 16r 6 3r 1 75r 6 27r 1 94r 3 24r 1 1r 3
1 4r 6 4r 5 11r 6 4r 1 77r 6 27r 1 94r 3 24r 1 1r 3 1r 1 4r 6
8r 5 2r 6 7r 1 78r 6 27r 1 94r 3 25r 1 3 2r 1 5r 6 15r 1 80r 6
28r 1 94r 3 28r 1 7r 6 10r 1 83r 6 28r 1 95r 3 24r 1 1r 3 1r 1
10r 6 2r 1 87r 6 29r 1 94r 3 25r 1 1r 3 1r 1 99r 6 30r 1 95r 3
24r 1 1r 3 3r 1 96r 6 32r 1 94r 3 24r 1 2r 3 3r 1 95r 6 33r 1
95r 3 22r 1 2r 3 6r 1 91r 6 35r 1 95r 3 20r 1 6r 3 11r 1 82r 6
37r 1 95r 3 18r 1 10r 3 6r 1 83r 6 39r 1 95r 3 15r 1 102r 6
41r 1 97r 3 9r 1 103r 6 45r 1 207r 6 49r 1 203r 6 52r 1 200r 6
55r 1 198r 6 58r 1 194r 6 61r 1 192r 6 63r 1 189r 6 67r 1 185r 6
70r 1 182r 6 75r 1 177r 6 79r 1 172r 6 85r 1 167r 6 91r 1 161r 6
97r 1 154r 6 103r 1 67r 6 6r 1 73r 6 110r 1 60r 6 13r 1 67r 6
118r 1 51r 6 20r 1 59r 6 129r 1 40r 6 28r 1 51r 6 150r 1 18r 6
37r 1 41r 6 217r 1 26r 6 40389r 2 16r 6 234r 2 26r 6 225r 2
35r 6 216r 2 43r 6 209r 2 49r 6 203r 2 54r 6 198r 2 14r 3 1r 2
1r 3 7r 2 32r 6 193r 2 13r 3 4r 2 2r 3 16r 2 24r 6 189r 2 13r 3

7r 2 1r 3 19r 2 23r 6 185r 2 13r 3 10r 2 1r 3 20r 2 23r 6 181r 2 13r 3 12r 2 1r 3 21r 2 24r 6 177r 2 12r 3 16r 2 1r 3 20r 2 26r 6 117r 1 3r 6 50r 2 15r 3 16r 2 2r 3 21r 2 26r 6 110r 1 15r 6 41r 2 16r 3 2 6r 3 10r 2 4r 3 13r 2 1r 3 2 30r 6 105r 1 23r 6 31r 1 6 2r 2 28r 3 6r 2 2r 6 2 8r 3 5r 2 1r 3 1r 2 31r 6 102r 1 30r 6 25r 1 3r 6 1r 2 34r 6 8r 2 1r 6 1r 2 6r 3 2r 2 33r 6 99r 1 37r 6 16r 1 8r 6 1r 2 29r 6 19r 2 1r 3 2r 2 36r 6 96r 1 66r 6 2 26r 6 21r 2 2r 3 1r 2 38r 6 92r 1 69r 6 1r 2 22r 6 24r 2 42r 6 92r 1 71r 6 2 19r 6 30r 2 37r 6 92r 1 73r 6 1r 2 14r 6 16r 1 3r 6 12r 2 12r 3 2r 2 18r 6 6r 1 1r 6 85r 1 76r 6 1r 2 10r 6 17r 1 13r 6 5r 2 10r 3 2r 2 15r 6 7r 1 7r 6 81r 1 78r 6 1r 2 6r 6 18r 1 14r 6 7r 2 10r 3 1r 2 11r 6 4r 1 19r 6 12r 1 12r 6 49r 1 82r 6 7r 4 5r 6 8r 1 15r 6 8r 2 10r 3 1r 2 8r 6 3r 1 55r 6 41r 1 83r 6 2r 4 11r 6 6r 1 16r 6 10r 2 15r 6 5r 1 58r 6 40r 1 82r 6 2r 4 13r 6 2r 1 20r 6 30r 1 61r 6 38r 1 82r 6 2r 4 13r 6 2r 1 20r 6 1r 5 1r 6 7r 1 1r 6 7r 1 3r 6 1r 1 65r 6 37r 1 81r 6 2r 4 15r 6 2r 1 17r 6 3r 5 4r 6 5r 1 80r 6 36r 1 81r 6 2r 4 16r 6 2r 1 18r 6 1r 5 7r 6 4r 1 5r 3 1 73r 6 35r 1 80r 6 3r 4 16r 6 2r 1 17r 6 2r 5 8r 6 4r 1 79r 6 35r 1 79r 6 3r 4 17r 6 1r 1 18r 6 1r 5 9r 6 6r 1 78r 6 33r 1 77r 3 1 1r 6 3r 4 17r 6 1r 1 17r 6 2r 5 10r 6 6r 1 77r 6 33r 1 77r 3 1 6 3r 4 18r 6 1r 1 17r 6 1r 5 12r 6 7r 1 76r 6 32r 1 76r 3 1r 1 6 3r 4 18r 6 1r 1 16r 6 2r 5 13r 6 7r 1 75r 6 31r 1 73r 3 4r 1 1r 6 2r 4 19r 6 1r 1 16r 6 2r 5 14r 6 9r 1 72r 6 31r 1 73r 3 4r 1 6 3r 4 19r 6 1r 1 5r 6 1 9r 6 2r 5 15r 6 9r 1 72r 6 30r 1 73r 3 3r 1 1r 6 3r 4 19r 6 1r 1 3r 6 5r 1 1r 6 1 2r 6 2r 5 17r 6 10r 1 70r 6 29r 1 74r 3 3r 1 1r 6 2r 4 19r 6 2r 1 6 12r 1 1r 6 2r 5 19r 6 9r 1 69r 6 29r 1 74r 3 2r 1 1r 6 3r 4 19r 6 17r 1 6 2r 5 20r 6 9r 1 69r 6 28r 1 74r 3 2r 1 1r 6 3r 4 19r 6 17r 1 6 1r 5 23r 6 8r 1 68r 6 28r 1 75r 3 1 2r 6 2r 4 19r 6 3r 1 10r 6 6r 5 25r 6 7r 1 67r 6 28r 1 78r 6 3r 4 18r 6 2r 1 14r 6 4r 5 27r 6 5r 1 67r 6 27r 1 79r 6 3r 4 18r 6 1r 1 16r 6 3r 5 29r 6 4r 1 67r 6 26r 1 79r 6 3r 4 17r 6 2r 1 17r 6 2r 5 30r 6 3r 1 67r 6 26r 1 79r 6 3r 4 16r 6 2r 1 18r 6 2r 5 30r 6 3r 1 67r 6 26r 1 79r 6 4r 4 14r 6 3r 1 5r 3 6r 1 6r 6 1r 5 30r 6 3r 1 67r 6 26r 1 79r 6 4r 4 13r 6 3r 1 5r 3 8r 1 5r 6 1r 5 31r 6 2r 1 67r 6 26r 1 79r 6 4r 4 12r 6 4r 1 3r 3 11r 1 4r 6 1r 5 31r 6 2r 1 68r 6 25r 1 80r 6 4r 4 9r 6 5r 1 4r 3 11r 1 4r 6 1r 5 31r 6 2r 1 68r 6 25r 1 80r 6 4r 4 8r 6 5r 1 4r 3 13r 1 3r 6 2r 5 30r 6 2r 1 68r 6 25r 1 80r 6 5r 4 6r 6 6r 1 3r 3 15r 1 3r 6 1r 5 30r 6 2r 1 68r 6 25r 1 76r 3 1 2r 6 18r 1 4r 3 15r 1 3r 6 1r 5 30r 6 2r 1 68r 6 25r 1 76r 3 2r 1 1r 6 16r 1 2r 3 1r 1 3 16r 1 2r 6 1r 5 30r 6 2r 1 68r 6 25r 1 76r 3 3r 1 1r 6 14r 1 2r 3 2r 1 3 16r 1 2r 6 2r 5 28r 6 2r 1 69r 6 25r 1 77r 3 2r 1 2r 6 12r 1 3r 3 21r 1 1r 6 2r 5 28r 6 2r 1 69r 6 25r 1 78r 3 1r 1 3r 6 10r 1 4r 3 1r 1 3 18r 1 2r 6 1r 5 28r 6 2r 1 3 1r 1 66r 6 26r 1 77r 3 2r 1 3r 6 8r 1 7r 3 19r 1 2r 6 1r 5 28r 6 1r 1 3 2r 1 67r 6 25r 1 78r 3 1r 1 6r 6 3r 1 9r 3 19r 1 2r 6 2r 5 26r 6 2r 1 3 1r 1 68r 6 25r 1 99r 3 21r 1 2r 6 2r 5 26r 6 1r 1 3 2r 1 68r 6 25r 1 98r 3 23r 1 2r 6 2r 5 24r 6 2r 1 3 2r 1 68r 6 25r 1 97r 3 24r 1 2r 6 3r 5 22r 6 2r 1 3 2r 1 69r 6 25r 1 97r 3 24r 1 2r 6 3r 5 21r 6 3r 1 3 1r 1 70r 6 25r 1 96r 3 26r 1 2r 6 3r 5 19r 6 3r 1 3 2r 1 70r 6 25r 1 95r 3 27r 1 3r 6 3r 5 17r 6 3r 1 1r 3 1 72r 6 25r 1 95r 3 27r 1 3r 6 4r 5 15r 6 3r 1 76r 6 25r 1 95r 3 27r 1 4r 6 6r 5 9r 6 5r 1 77r 6 26r 1 94r 3 27r 1 5r 6 19r 1 79r 6 26r 1 94r 3 27r 1 7r 6 15r 1 81r 6 26r 1 95r 3 27r 1 8r 6 10r 1 84r 6 26r 1 95r 3 26r 1 104r 6 28r 1 95r 3 25r 1 1r 3 1 101r 6 28r 1 96r 3 24r 1 103r 6 30r 1 96r 3 24r 1 3r 3 1r 1 95r 6 32r 1 96r 3 22r 1 4r 3 2r 1 94r 6 33r 1 96r 3 20r 1 4r 3 5r 1 91r 6 35r 1 96r 3 18r 1 6r 3 7r 1 87r 6 37r 1 96r 3 16r 1 11r 3 1r 1 88r 6 39r 1 97r 3 10r 1 105r 6 42r 1 99r 3 1 109r 6 45r 1 207r 6 49r 1 203r 6 52r 1 200r 6 56r 1 197r 6 58r 1 194r 6 62r 1 191r 6 64r 1 188r 6 67r 1 185r 6 71r 1 181r 6 75r 1 176r 6 81r 1 171r 6 86r 1 166r 6 92r 1 159r 6 99r 1 153r 6 104r 1 65r 6 8r 1 72r 6 111r 1 58r 6 15r 1 65r 6 121r 1 47r 6 23r 1 58r 6 132r 1 36r 6 30r 1 49r 6 209r 1 39r 6 220r 1 22r 6 40392r 2 13r 6 235r 2 27r 6 224r 2 36r 6 216r 2 43r 6 209r 2 49r 6 202r 2 55r 6 197r 2 12r 3 4r 2 41r 6 194r 2 12r 3 6r 2 3r 3 5r 2 32r 6 190r 2 11r 3 9r 2 2r 3 7r 2 3r 3 2 28r 6 186r 2 11r 3 12r 2 1r 3 8r 2 3 9r 2 23r 6 182r 2 11r 3 15r 2 1r 3 5r 2 2r 3 9r 2 25r 6 178r 2 10r 3 18r 2 2r 3 2r 2 6r 3 12r 2 22r 6 118r 1 3r 6 51r 2 10r 3 20r 2 12r 3 12r 2 24r 6 112r 1 14r 6 42r 2 13r 3 18r 2 15r 3 3r 2 1r 3 5r 2 25r 6 107r 1 22r 6 34r 1 6 1r 2 14r 3 2r 2 4r 3 7r 2 5r 6 5r 2 7r 3 2 1r 3 6r 2 26r 6 103r 1 31r 6 25r 1 4r 6 1r 2 34r 6 14r 2 2r 3 6r 2 28r 6 100r 1 38r 6 16r 1 9r 6 1r 2 30r 6 1r 1 9r 6 6r 2 1r 3 4r 2 31r 6 96r 1 69r 6 1r 2 26r 6 1 15r 6 4r 2 3 2r 2 35r 6 93r 1 72r 6 1r 2 22r 6 1 18r 6 4r 2 38r 6 92r 1 74r 6 2r 2 19r 6 1 20r 6 4r 2 35r 6 93r 1 77r 6 2r 2 15r 6 2r 1 6 12r 1 8r 6 4r 2 30r 6 5r 1 3r 6 86r 1 79r 6 5r 2 5r 6 24r 1 6r 6 6r 2 22r 6 6r 1 10r 6 82r 1 83r 6 36r 1 5r 6 8r 2 16r 6 5r 1 18r 6 15r 1 12r 6 48r 1 85r 6 56r 2 6r 6 4r 1 58r 6 41r 1 84r 6 58r 2 3r 6 1 66r 6 38r 1 84r 6 7r 4 5r 6 34r 1 8r 6 4r 1 69r 6 37r 1 84r 6 5r 4 8r 6 34r 1 83r 6 36r 1 83r 6 3r 4 12r 6 26r 5 2r 6 4r 1 6r 3 2r 1 73r 6 34r 1 83r 6 3r 4 13r 6 18r 1 2r 6 3r 5 4r 6 3r 1 7r 3 1r 1 73r 6 34r 1 83r 6 3r 4 13r 6 2r 1 2r 6 11r 1 3r 6 2r 5 6r 6 3r 1 6r 3 1r 1 74r 6 33r 1 82r 6 3r 4 14r 6 2r 1 4r 6 8r 1 3r 6 2r 5 8r 6 4r 1 5r 3 1 74r 6 32r 1 83r 6 3r 4 14r 6 1r 1 8r 6 4r 1 4r 6 1r 5 9r 6 5r 1 4r 3 1r 1 74r 6 31r 1 82r 6 4r 4 6r 1 2r 4 4r 6 1r 1 18r 6 1r 5 10r 6 6r 1 3r 3 1 74r 6 31r 1 81r 6 4r 4 7r 1 1r 4 5r 6 2r 1 17r 6 1r 5 11r 6 6r 1 78r 6 31r 1 80r 6 4r 4 16r 6 2r 1 16r 6 2r 5 11r 6 7r 1 78r 6 29r 1 81r 6 3r 4 17r 6 2r 1 4r 6 7r 1 3r 6 1r 5 13r 6 8r 1 76r 6 29r 1 78r 3 1 1r 6 3r 4 16r 6 3r 1 1r 6 11r 1 2r 6 1r 5 14r 6 10r 1 73r 6 29r 1 75r 3 3r 1 1r 6 3r 4 16r 6 17r 1 2r 6 1r 5 16r 6 9r 1 73r 6 27r 1 75r 3 4r 1 1r 6 3r 4 15r 6 23r 5 17r 6 9r 1 72r 6 27r 1 75r 3 4r 1 1r 6 3r 4 15r 6 5r 1 10r 6 6r 5 19r 6 8r 1 71r 6 27r 1 76r 3 3r 1 1r 6 3r 4 14r 6 4r 1 13r 6 5r 5 21r 6 7r 1 70r 6 27r 1 76r 3 3r 1 1r 6 2r 6 3r 4 13r 6 4r 1 15r 6 4r 5 23r 6 6r 1 70r 6 26r 1 76r 3 2r 1 1r 6 4r 4 12r 6 4r 1 17r 6 2r 5 25r 6 6r 1 69r 6 26r 1 77r 3 1 2r 6 5r 4 10r 6 5r 1 17r 6 2r 5 26r 6 6r 1 68r 6 26r 1 81r 6 6r 4 7r 6 6r 1 5r 3 5r 1 7r 6 2r 5 26r 6 5r 1 68r 6 26r 1 81r 6 7r 4 4r 6 8r 1 4r 3 8r 1 5r 6 2r 5 26r 6 5r 1 69r 6 25r 1 81r 6 20r 1 3r 3 11r 1 4r 6 2r 5 27r 6 4r 1 69r 6 25r 1 81r 6 19r 1 3r 3 12r 1 4r 6 2r 5 27r 6 4r 1 69r 6 25r 1 82r 6 17r 1 3r 3 14r 1 4r 6 1r 5 27r 6 4r 1 69r 6 25r 1 82r 6 16r 1 4r 3 15r 1 3r 6 1r 5 28r 6 3r 1 69r 6 25r 1 82r 6 16r 1 3r 3 16r 1 3r 6 1r 5 28r 6 3r 1 69r 6 25r 1 83r 6 14r 1 4r 3 17r 1 2r 6 2r 5 27r 6 3r 1 69r 6 25r 1 83r 6 13r 1 3r 3 19r 1 3r 6 1r 5 27r 6 3r 1 69r 6 25r 1 84r 6 10r 1 4r 3 21r 1 2r 6 1r 5 26r 6 3r 1 71r 6 24r 1 80r 3 1r 1 3r 6 7r 1 4r 3 22r 1 2r 6 2r 5 25r 6 3r 1 71r 6 24r 1 80r 3 3r 1 13r 3 23r 1 2r 6 2r 5 25r 6 3r 1 71r 6 24r 1 80r 3 4r 1 10r 3 4r 1 3 19r 1 2r 6 2r 5 25r 6 2r 1 72r 6 24r 1 80r 3 5r 1 9r 3 1 4r 3 19r 1 3r 6 1r 5 24r 6 3r 1 72r 6 24r 1 82r 3 4r 1 13r 3 20r 1 3r 6 2r 5 22r 6 3r 1 1r 3 1r 1 69r 6 24r 1 85r 3 3r 1 10r 3 21r 1 1r 3 1 6 3r 5 21r 6 3r 1 3 2r 1 69r 6 24r 1 99r 3 22r 1 1r 3 1 1r 6 2r 5 20r 6 3r 1 3 2r 1 70r 6 24r 1 98r 3 24r 1 3 1 1r 6 4r 5 17r 6 3r 1 1r 3 2r 1 70r 6 25r 1 96r 3 25r 1 4r 6 4r 5 15r 6 4r 1 3 2r 1 71r 6 25r 1 95r 3 27r 1 4r 6 5r 5 12r 6 4r 1 1r 3 1r 1 72r 6 25r 1 95r 3 27r 1 4r 6 10r 5 1r 6 9r 1 1r 3 1r 1 73r 6 25r 1 95r 3 28r 1 4r 6 20r 1 78r 6 25r 1 95r 3 28r 1 5r 6 17r 1 80r 6 26r 1 94r 3 28r 1 8r 6 10r 1 84r 6 26r 1 95r 3 27r 1 104r 6 26r 1 96r 3 26r 1 104r 6 27r 1 96r 3 26r 1 102r 6 28r 1 96r 3 26r 1 101r 6 30r 1 96r 3 25r 1 100r 6 32r 1 96r 3 22r 1 102r 6 33r 1 96r 3 20r 1 102r 6 35r 1 97r 3 17r 1 102r 6 38r 1 96r 3 13r 1 104r 6 40r 1 98r 3 6r 1 107r 6 42r 1 210r 6 46r 1 206r 6 49r 1 203r 6 53r 1 199r 6 56r 1 197r 6 59r 1 193r 6 62r 1 191r 6 64r 1 188r 6 68r 1 184r 6 72r 1 180r 6 76r 1 175r 6 82r 1 170r 6 87r 1 165r 6 93r 1 158r 6 100r 1 70r 6 1r 1 79r 6 105r 1 63r 6 10r 1 71r 6 112r 1 55r 6 18r 1 64r 6 123r 1 44r 6 25r 1 57r 6 136r 1 31r 6 32r 1 48r 6 210r 1 35r 6 224r 1 18r 6 40645r 2 26r 6 225r 2 36r 6 215r 2 44r 6 208r 2 50r 6 202r 2 55r 6 197r 2 14r 3 2r 2 41r 6 193r 2 13r 3 6r 2 42r 6 189r 2 12r 3 9r 2 44r 6 186r 2 11r 3 13r 2 24r 3 2 18r 6 182r 2 10r 3 16r 2 22r 3 4r 2 18r 6 178r 2 10r 3 17r 2 22r 3 6r 2 19r 6 119r 1 2r 6 51r 2 9r 3 18r 2 23r 3 8r 2 20r 6 112r 1 14r 6 43r 2 8r 3 19r 2 21r 6 1r 2 3 8r 2 21r 6 108r 1 22r 6 37r 2 8r 3 16r 2 25r 6 1r 2 1r 3 7r 2 23r 6 104r 1 30r 6 27r 1 2r 6 2r 2 5r 3 8r 2 13r 6 9r 2 8r 6 3r 2 2r 3 5r 2 26r 6 100r 1 38r 6 19r 1 6r 6 2r 2 2r 3 3r 2 18r 6 2r 1 13r 6 7r 2 3r 3 3r 2 27r 6 97r 1 69r 6 1r 2 22r 6 1r 1 19r 6 6r 2 3r 3 2 29r 6 95r 1 72r 6 1r 2 17r 6 1r 1 24r 6 6r 2 32r 6 94r 1 75r 6 2r 2 10r 6 1r 1 31r 6 6r 2 27r 6 95r 1 78r 6 2r 2 4r 6 2r 1 36r 6 12r 2 14r 6 7r 1 4r 6 86r 1 83r 6 5r 1 40r 6 11r 2 9r 6 5r 1 11r 6 84r 1 86r 6 2r 1 5r 6 21r 1 13r 6 12r 2 4r 6 7r 1 16r 6 18r 1 12r 6 47r 1 87r 6 34r 1 11r 6 4r 1 2r 6 4r 2 6 1r 1 3r 6 1r 1 57r 6 40r 1 87r 6 37r 1 17r 6 3r 1 68r 6 38r 1 87r 6 41r 1 87r 6 36r 1 87r 6 7r 4 2r 6 32r 1 11r 3 1 74r 6 35r 1 86r 6 6r 4 6r 6 31r 1 10r 3 1r 1 74r 6 34r 1 85r 6 6r 4 7r 6 33r 1 8r 3 1r 1 75r 6 32r 1 85r 6 6r 4 9r 6 25r 5 3r 6 3r 1 8r 3 1 75r 6 32r 1 85r 6 5r 4 10r 6 24r 5 5r 6 3r 1 7r 3 1r 1 75r 6 31r 1 83r 6 6r 4 11r 6 23r 5 8r 6 3r 1 6r 3 1 76r 6 29r 1 84r 6 6r 4 11r 6 23r 5 10r 6 2r 1 5r 3 1r 1 75r 6 29r 1 83r 6 7r 4 11r 6 23r 5 11r 6 3r 1 4r 3 1r 1 74r 6 29r 1 83r 6 7r 4 10r 6 23r 5 13r 6 2r 1 5r 3 1 74r 6 28r 1 83r 6 9r 4 9r 6 23r 5 13r 6 4r 1 80r 6 27r 1 83r 6 9r 4 8r 6 9r 1 1r 6 12r 5 14r 6 4r 1 79r 6 27r 1 83r 6 9r 4 7r 6 7r 1 10r 6 5r 5 16r 6 4r 1 78r 6 27r 1 77r 3 4r 1 6 10r 4 6r 6 5r 1 13r 6 4r 5 17r 6 5r 1 77r 6 25r 1 77r 3 5r 1 6 11r 4 4r 6 5r 1 15r 6 3r 5 18r 6 6r 1 75r 6 25r 1 77r 3 5r 1 6 21r 1 16r 6 3r 5 21r 6 4r 1 74r 6 25r 1 77r 3 4r 1 1r 6 20r 1 18r 6 1r 5 24r 6 3r 1 73r 6 25r 1 78r 3 3r 1 1r 6 19r 1 5r 3 3r 1 9r 6 1r 5 24r 6 4r 1 72r 6 25r 1 78r 3 3r 1 1r 6 19r 1 4r 3 7r 1 6r 6 1r 5 25r 6 4r 1 72r 6 24r 1 79r 3 1r 1 2r 6 18r 1 4r 3 9r 1 6r 6 1r 5 25r 6 3r 1 72r 6 24r 1 84r 6 17r 1 3r 3 12r 1 5r 6 1r 5 25r 6 4r 1 71r 6 24r 1 84r 6 16r 1 3r 3 14r 1 4r 6 1r 5 26r 6 3r 1 71r 6 24r 1 85r 6 15r 1 2r 3 16r 1 3r 6 1r 5 27r 6 3r 1 70r 6 24r 1 85r 6 14r 1 2r 3 17r 1 3r 6 2r 5 26r 6 3r 1 70r 6 24r 1 85r 6 13r 1 3r 3 18r 1 3r 6 1r 5 26r 6 3r 1 70r 6 24r 1 86r 6 11r 1 3r 3 19r 1 3r 6 1r 5 26r 6 3r 1 71r 6 23r 1 87r 6 8r 1 6r 3 19r 1 2r 6 1r 5 25r 6 4r 1 71r 6 23r 1 88r 6 4r 1 8r 3 20r 1 2r 6 2r 5 24r 6 3r 1 72r 6 24r 1 101r 3 21r 1 1r 6 2r 5 24r 6 3r 1 72r 6 24r 1 98r 3 23r 1 3r 6 2r 5 22r 6 4r 1 72r 6 24r 1 82r 3 3r 1 11r 3 1 1r 3 20r 1 3r 6 3r 5 21r 6 3r 1 73r 6 24r 1 83r 3 3r 1 3 1r 1 3r 3 1r 1 4r 3 20r 1 1r 3 1 6 3r 5 21r 6 3r 1 73r 6 24r 1 84r 3 8r 1 3 1 4r 3 20r 1 2r 3 1r 1 6 3r 5 19r 6 3r 1 74r 6 24r 1 86r 3 3r 1 8r 3 21r 1 2r 3 1r 1 6 4r 5 17r 6 4r 1 74r 6 24r 1 99r 3 22r 1 3 2r 1 1r 6 4r 5 15r 6 4r 1 1r 3 1r 1 71r 6 24r 1 98r 3 23r 1 3 2r 1 1r 6 5r 5 13r 6 4r 1 1r 3 2r 1 71r 6 24r 1 97r 3 28r 1 2r 6 5r 5 10r 6 5r 1 1r 3 2r 1 72r 6 24r 1 96r 3 27r 1 4r 6 8r 5 4r 6 7r 1 1r 3 2r 1 73r 6 24r 1 96r 3 27r 1 5r 6 19r 1 1r 3 2r 1 74r 6 25r 1 95r 3 28r 1 6r 6 15r 1 3r 3 1r 1 75r 6 25r 1 95r 3 29r 1 7r 6 10r 1 5r 3 1 77r 6 25r 1 96r 3 28r 1 10r 6 2r 1 89r 6 26r 1 95r 3 28r 1 103r 6 26r 1 96r 3 27r 1 103r 6 27r 1 96r 3 26r 1 102r 6 28r 1 97r 3 25r 1 101r 6 30r 1 97r 3 23r 1 101r 6 33r 1 96r 3 20r 1 103r 6 34r 1 96r 3 18r 1 103r 6 36r 1 96r 3 16r 1 103r 6 38r 1 99r 3 7r 1 107r 6 40r 1 213r 6 43r 1 209r 6 46r 1 206r 6 50r 1 202r 6 53r 1 199r 6 57r 1 195r 6 60r 1 193r 6 63r 1 189r 6 66r 1 186r 6 69r 1 184r 6 73r 1 178r 6 78r 1 174r 6 83r 1 169r 6 88r 1 163r 6 95r 1 157r 6 101r 1 67r 6 5r 1 76r 6 107r 1 61r 6 12r 1 70r 6 114r 1 53r 6 19r 1 62r 6 125r 1 42r 6 27r 1 55r 6 141r 1 25r 6 35r 1 45r 6 213r 1 32r 6 227r 1 14r 6 40648r 2 25r 6 226r 2 37r 6 214r 2 44r 6 208r 2 50r 6 202r 2 55r 6 197r 2 60r 6 192r 2 17r 3 2r 2 43r 6 188r 2 16r 3 6r 2 7r 6 10r 2 6r 3 2r 2 15r 6 184r 2 12r 3 11r 2 3r 6 21r 3 4r 2 15r 6 181r 2 11r 3 13r 2 6 24r 3 6r 2 16r 6 178r 2 9r 3 14r 2 1r 6 25r 3 6r 2 18r 6 119r 1 1r 6 52r 2 9r 3 15r 2 1r 6 27r 3 6r 2 19r 6 112r 1 14r 6 43r 2 8r 3 16r 2 6 30r 3 5r 2 20r 6 108r 1 22r 6 38r 2 6r 3 14r 2 3r 6 6r 3 1r 6 6r 1 7r 6 8r 3 5r 6 2 20r 6 104r 1 29r 6 28r 1 3r 6 2r 2 3r 3 11r 2 6r 6 10r 1 15r 6 7r 3 5r 2 21r 6 101r 1 38r 6 19r 1 8r 6 2 2r 3 8r 2 7r 6 8r 1 21r 6 7r 3 3r 6 2 22r 6 97r 1 48r 6 4r 1 17r 6 2r 2 3 2r 2 9r 6 7r 1 26r 6 11r 2 21r 6 96r 1 74r 6 3r 2 8r 6 6r 1 31r 6 10r 2 18r 6 97r 1 77r 6 13r 1 37r 6 9r 2 16r 6 4r 1 6 91r 1 81r 6 6r 1 43r 6 8r 2 10r 6 5r 1 7r 6 87r 1 136r 6 7r 2 5r 6 5r 1 12r 6 85r 1 142r 6 9r 1 19r 6 19r 1 14r 6 46r 1 148r 6 1 65r 6 39r 1 216r 6 37r 1 219r 6 35r 1 220r 6 33r 1 221r 6 33r 1 93r 4 4r 1 123r 6 32r 1 92r 4 6r 1 123r 6 31r 1 91r 4 8r 1 44r 3 1 76r 6 30r 1 91r 4 9r 1 27r 5 3r 1 12r 3 1 77r 6 29r 1 91r 4 9r 1 26r 5 5r 1 11r 3 1r 1 76r 6 29r 1 92r 4 9r 1 24r 5 7r 1 10r 3 1r 1 76r 6 28r 1 94r 4 8r 1 24r 5 8r 1 10r 3 1 77r 6 27r 1 94r 4 7r 1 25r 5 9r 1 9r 3 1r 1 76r 6 27r 1 94r 4 6r 1 26r 5 10r 1 9r 3 1 76r 6 26r 1 95r 4 5r 1 26r 5 12r 1 86r 6 26r 1 95r 4 4r 1 27r 5 13r 1 86r 6 25r 1 95r 4 3r 1 27r 5

```
 15r 1 85r 6 25r 1 82r 3 1 11r 4 2r 1 28r 5 17r 1 83r 6 25r 1151
54  -3.6670      -14    -15 16          imp:P=1  $ NaI detector
152  55 -1.8488      -14    15  -17         imp:P=1  $ Be window
153  6 -0.0012   -19 18 -21 20 -23 22 #151 #152 #155 #156
#157 #8 imp:P=1  $ air
155  57  -4.51        -14    -16 25         imp:P=1  $ CsI
156  58  -7.86        -24 14 -17 25           imp:P=1  $ SS
157  58  -7.86        -24 27 -26 17           imp:P=1  $ Front SS
c 201 53  -1.090 (-101:8:-103:10:-105:12)#151 #152 #155
#156 #157      IMP:P=1
158 59 -8.96   32 -33 30 -31 28 -29  (19:-18:21:-20:23:-22)
imp:p=1
159 60 -8.65   38 -39 36 -37 34 -35 (-32:33:-30:31:-28:29)
IMP:P=1
160 61 -11.3   44 -45 42 -43 40 -41 (-38:39:-36:37:-34:35)
IMP:P=1
161 58 -7.86   50 -51 48 -49 46 -47 (-44:45:-42:43:-40:41)
IMP:P=1
154 0               (-50:51:-48:49:-46:47)        imp:P=0

c
c
c
++++++++++++++++++++++++++++++++++++++++++++++++
+++++++
c
c    Surfaces
c
c
++++++++++++++++++++++++++++++++++++++++++++++++
+++++++
14 c/y 39 29 10.15
15 py 16.694
16 py 16.394
17 py 16.744
25 py 11.394
24 c/y 39 29 10.3
27 c/y 39 29 10
26 py 16.844
18 pz -15.0
19 pz 215.0
20 px -10.0
21 px 200.0
22 py -73.0
23 py 117
28 pz -15.1
29 pz 215.1
30 py -73.1
31 py 117.1
32 px -10.1
33 px 200.1
34 PZ -15.3
35 PZ 215.3
36 PY -73.3
37 PY 117.3
38 PX -10.3
39 PX 200.3
40 PZ -15.6
41 PZ 215.6
42 PY -73.6
43 PY 117.6
44 PX -10.6
45 PX 200.6
46 PZ -35.6
47 PZ 235.6
48 PY -93.6
49 PY 137.6
50 PX -30.6
51 PX 220.6
c
100 s  0.13711385 0.13711385 0.125 1
c
c Box for Filling Universes
c
c
  1  rpp   0.000  70.2022912 0.000  70.2022912 0.000  52.5
  2  rpp   0.000  0.2742277  0.000  0.2742277  0.000  0.25
c
c
++++++++++++++++++++++++++++++++++++++++++++++++
+++++++
c
c    Materials
c
c
++++++++++++++++++++++++++++++++++++++++++++++++
+++++++
c

c Mat 1: Muscle
c
m1           1000   -0.0903
             6000   -0.594
             7000   -0.033
             8000   -0.266
            20000   -0.017
c
c
c Mat 3: Bone
c
m3           1000   -0.0638
             6000   -0.472
             7000   -0.0212
             8000   -0.313
            20000   -0.13
c
c Mat 4: Lung Tissue
c
m4           1000   -0.08
             6000   -0.608
             7000   -0.042
             8000   -0.249
            20000   -0.021
c
c
c Mat 6: Air
c
m6           1001   -2.98317e-007
             1002   -8.94403e-011
             2003   -7.63771e-013
             2004   -7.24005e-007
             6012   -0.00012086
             6013   -1.45665e-006
             7014   -0.752288
             7015   -0.00299272
             8016   -0.231709
            16032   -7.22289e-009
            18000   -0.0128834
            36078   -1.07285e-008
            36080   -7.07357e-008
            36082   -3.73794e-007
            36083   -3.751e-007
            36084   -1.88157e-006
            36086   -5.84674e-007
            54000   -3.96208e-007
M53    7000 -0.8
       8000 -0.2
m54 11000 -0.1534 53000 -0.8466
m55 4000  -1.0
m56  6000 -0.000125 7000 -0.755267 8000 -0.231781 18000 -
0.012827  $Air
m57 55000  -0.5096 53000 -0.4904
M58   26000 -0.66345     $ Stainless Steel
      24000 -0.2
      28000 -0.105
      14000 -0.01
      25000 -0.02
       6000 -0.0008
      15000 -0.00045
      16000 -0.0003
M59   29000 -1.0
M60   48000 -1.0
m61   82000 -1.0
c
mode p
sdef  pos=0.13711385 0.13711385 0.125 erg=0.0594 cel=d5
x=d2  y=d3  z=d4
c si1 s d5 d6
c sp1 0.56668 0.43332
si5 l 8:7:4
sp5 1
c si6 l 8:7:5
c sp6 1
si2 h  -0.13711385 0.13711385
sp2 d   0. 1
si3 h  -0.13711385 0.13711385
sp3 d   0. 1
si4 h  -0.125 0.1
25
sp4 d   0. 1
c si7 l  0.06329 0.09238 0.0928
c sp7  0.048 0.0281 0.0277
f8:p 151                              $ tally
c *tr1 13 0 -1 0 90 90 90 0 90 90 90 0
c *tr2 0 1.5 0 0 90 90  90 0 90  90 90 0
FT8 GEB 0.00074 0.02456 6.09374
E8 0 1E-5 0.00043 240I 0.100
NPS 2100000000
PRDMP -120 -120
PRINT
```

APPENDIX
Appendix A.3 List of cells, densities and corresponding material used in ICRP female phantom

Cell No.	Density (g/cc)	Material	Cell No.	Density (g/cc)	Material
1	----	Rpp phantom	78	1.04	Ascending colon wall
2	----	Repeated structure	79	1.04	Ascending colon contents
3	1.03	Adrenal_left	80	1.04	Transverse colon wall right
4	1.03	Adrenal_right	81	1.04	Transverse colon contents right
5	1.03	Anterior_nasal_passage (ET1)	82	1.04	Transverse colon wall left
6	1.03	Posterior_nasal_passage (ET2)	83	1.04	Transverse colon contents left
7	1.05	Tongue	84	1.04	descending colon wall
8	1.05	Lips, cheeks	85	1.04	descending colon contents
9	1.03	Trachea	86	1.04	sigmoid colon wall
10	1.03	Bronchi	87	1.04	sigmoid colon contents
11	1.06	Blood_vessels_Head	88	1.04	Rectum wall
12	1.06	Blood_vessels_Trunk	89	1.05	Heart wall
13	1.06	Blood_vessels_Arms	90	1.06	Heart blood
14	1.06	Blood_vessels_legs	91	1.05	Kidney_left_cortex
15	1.92	Humeri_upper_half_ cortical	92	1.05	Kidney_left_medulla
16	1.185	Humeri_upper_half_ spongiosa	93	1.05	Kidney_left_pelvis
17	0.98	Humeri_upper_half_ medullar cavity	94	1.05	Kidney_right_cortex

Cell No.	Density (g/cc)	Material	Cell No.	Density (g/cc)	Material
18	1.92	Humeri_lower_half_ cortical	95	1.05	Kidney_right_medulla
19	1.117	Humeri_lower_half_ spongiosa	96	1.05	Kidney_right_pelvis
20	0.98	Humeri_lower_half_ medullar cavity	97	1.05	Liver
21	1.92	Ulnae & Radii cortical	98	1.06	Lung_left_blood
22	1.117	Ulnae & Radii spongiosa	99	0.385	Lung_left_tissue
23	0.98	Ulnae & Radii medullar cavity	100	1.06	Lung_right_blood
24	1.92	Wrist & hand bones cortical	101	0.385	Lung_right_tissue
25	1.117	Wrist & hand bones spongiosa	102	1.03	Lymphatic nodes_extrathoracic ways
26	1.92	Clavicles cortical	103	1.03	Lymphatic nodes_ thoracic ways
27	1.191	Clavicles spongiosa	104	1.03	Lymphatic nodes_Head
28	1.92	Cranium cortical	105	1.03	Lymphatic nodes_trunk
29	1.245	Cranium spongiosa	106	1.03	Lymphatic nodes_arms
30	1.92	Femura upper half cortical	107	1.03	Lymphatic nodes_legs
31	1.046	Femura upper half spongiosa	108	1.05	Muscle_head
32	0.98	Femura upper half medullar cavity	109	1.05	Muscle_ trunk
33	1.92	Femura lower half cortical	110	1.05	Muscle_ arms
34	1.046	Femura lower half spongiosa	111	1.05	Muscle_ legs
35	0.98	Femura lower half medullar cavity	112	1.03	Oesophagus
36	1.92	Tibia, fibulae & patellae cortical	113	1.04	Ovary_left
37	1.117	Tibia, fibulae &patellae spongiosa	114	1.04	Ovary_right

Cell No.	Density (g/cc)	Material	Cell No.	Density (g/cc)	Material
38	0.98	Tibia, fibulae & patellae medullar cavity	115	1.05	Pancreas
39	1.92	Ankles & foot bones cortical	116	1.03	Pituitary gland
40	1.117	Ankles & foot bones spongiosa			
41	1.92	Mandible cortical	118	0.95	Residual tissue_Head
42	1.189	Mandible spongiosa	119	0.95	Residual tissue_trunk
43	1.92	Pelvis cortical	120	0.95	Residual tissue_arms
44	1.109	Pelvis spongiosa	121	0.95	Residual tissue_legs
45	1.92	Ribs cortical	122	1.03	Salivary glands_left
46	1.092	Ribs spongiosa	123	1.03	Salivary glands_right
47	1.92	Scapulae cortical	124	1.09	Skin_Head
48	1.128	Scapulae spongiosa	125	1.09	Skin_trunk
49	1.92	Cervical spine cortical	126	1.09	Skin_arms
50	1.135	Cervical spine spongiosa	127	1.09	Skin_legs
51	1.92	Thoracic spine cortical	128	1.03	Spinal cord
52	1.084	Thoracic spongiosa	129	1.04	Spleen
53	1.92	Lumbar spine cortical	130	2.75	Teeth
54	1.171	Lumbar spine spongiosa	131	1.04	Ovary_left
55	1.92	Sacrum cortical	132	1.04	Ovary_right
56	1.052	Sacrum spongiosa	133	1.03	Thymus
57	1.92	Sternum cortical	134	1.04	Thyroid
58	1.076	Sternum spongiosa	135	1.05	Tongue (inner part)
59	1.1	Cartilage_Head	136	1.03	Tonsils

Cell	Density (g/cc)	Material	Cell	Density (g/cc)	Material
60	1.1	Cartilage_trunk	137	1.03	Ureter_left
61	1.1	Cartilage_arms	138	1.03	Ureter_right
62	1.1	Cartilage_legs	140	1.04	Urinary bladder wall
63	1.05	Brain	141	1.04	Urinary bladder contents
64	0.95	Breast_left_adipose tissue	142	1.03	Uterus
65	1.02	Breast_left_glandular tissue	143	0.0012	Air inside the body
66	0.95	Breast_right_adipose tissue	144	1.09	Skin at top and bottom
67	1.02	Breast_right_glandular tissue	151	3.667	NaI crystal
68	1.05	Eye lens_left	152	1.8488	Be
69	1.05	Eye bulb_left	153	0.0012	Air inside the steel room
70	1.05	Eye lens_rt	155	4.51	CsI crystal
71	1.05	Eye bulb_rt	156	7.86	Side SS
72	1.03	Gall bladder wall	157	7.86	Front SS
73	1.03	Gall bladder contents	158	8.96	Cu
74	1.04	Stomach wall	159	8.65	Cd
75	1.04	Stomach contents	160	11.3	Pb
76	1.04	Small intestine wall	161	7.86	Steel
77	1.04	Small intestine contents	154	----	Void outside world

Appendix A.4 List of cells, densities and corresponding material used in ICRP male phantom

Cell No.	Density (g/cc)	Material	Cell No.	Density (g/cc)	Material
1	----	Rpp phantom	77	1.04	Small intestine contents
2	----	Repeated structure	78	1.04	Ascending colon wall
3	1.03	Adrenal_left	79	1.04	Ascending colon contents
4	1.03	Adrenal_right	80	1.04	Transverse colon wall right
5	1.03	Anterior_nasal_passage (ET1)	81	1.04	Transverse colon contentsright
6	1.03	Posterior_nasal_passage(ET2)	82	1.04	Transverse colon wall left
7	1.05	Tongue	83	1.04	Transverse colon contents left
8	1.05	Lips, cheeks	84	1.04	descending colon wall
9	1.03	Trachea	85	1.04	descending colon contents
10	1.03	Bronchi	86	1.04	sigmoid colon wall
11	1.06	Blood_vessels_Head	87	1.04	sigmoid colon contents
12	1.06	Blood_vessels_Trunk	88	1.04	Rectum wall
13	1.06	Blood_vessels_Arms	89	1.05	Heart wall
14	1.06	Blood_vessels_legs	90	1.06	Heart blood
15	1.92	Humeri_upper_half_ cortical	91	1.05	Kidney_left_cortex
16	1.205	Humeri_upper_half_ spongiosa	92	1.05	Kidney_left_medulla
17	0.98	Humeri_upper_half_ medullar cavity	93	1.05	Kidney_left_pelvis
18	1.92	Humeri_lower_half_ cortical	94	1.05	Kidney_right_cortex
19	1.108	Humeri_lower_half_ spongiosa	95	1.05	Kidney_right_medulla

Cell No.	Density (g/cc)	Material	Cell No.	Density (g/cc)	Material
20	0.98	Humeri_lower_half_ medullar cavity	96	1.05	Kidney_right_pelvis
21	1.92	Ulnae & Radii cortical	97	1.05	Liver
22	1.108	Ulnae & Radii spongiosa	98	1.06	Lung_left_blood
23	0.98	Ulnae & Radii medullar cavity	99	0.385	Lung_left_tissue
24	1.92	Wrist & hand bones cortical	100	1.06	Lung_right_blood
25	1.108	Wrist & hand bones spongiosa	101	0.385	Lung_right_tissue
26	1.92	Clavicles cortical	102	1.03	Lymphatic nodes_extrathoracic ways
27	1.151	Clavicles spongiosa	103	1.03	Lymphatic nodes_ thoracic ways
28	1.92	Cranium cortical	104	1.03	Lymphatic nodes_Head
29	1.157	Cranium spongiosa	105	1.03	Lymphatic nodes_trunk
30	1.92	Femura upper half cortical	106	1.03	Lymphatic nodes_arms
31	1.124	Femura upper half spongiosa	107	1.03	Lymphatic nodes_legs
32	0.98	Femura upper half medullar cavity	108	1.05	Muscle_head
33	1.92	Femura lower half cortical	109	1.05	Muscle_ trunk
34	1.108	Femura lower half spongiosa	110	1.05	Muscle_ arms
35	0.98	Femura lower half medullar cavity	111	1.05	Muscle_ legs
36	1.92	Tibia, fibulae & patellae cortical	112	1.03	Oesophagus
37	1.108	Tibia, fibulae & patellae spongiosa	115	1.05	Pancreas
38	0.98	Tibia, fibulae & patellae medullar cavity	116	1.03	Pituitary gland
39	1.92	Ankles & foot bones cortical	117	1.03	Prostrate
40	1.108	Ankles & foot bones spongiosa	118	0.95	Residual tissue Head

Cell No.	Density (g/cc)	Material	Cell No.	Density (g/cc)	Material
41	1.92	Mandible cortical	119	0.95	Residual tissue trunk
42	1.228	Mandible spongiosa	120	0.95	Residual tissue_arms
43	1.92	Pelvis cortical	121	0.95	Residual tissue_legs
44	1.123	Pelvis spongiosa	122	1.03	Salivary glands_left
45	1.92	Ribs cortical	123	1.03	Salivary glands_right
46	1.165	Ribs spongiosa	124	1.09	Skin_Head
47	1.92	Scapulae cortical	125	1.09	Skin_trunk
48	1.183	Scapulae spongiosa	126	1.09	Skin_arms
49	1.92	Cervical spine cortical	127	1.09	Skin_legs
50	1.105	Cervical spine spongiosa	128	1.03	Spinal cord
51	1.92	Thoracic spine cortical	129	1.04	Spleen
52	1.074	Thoracic spine spongiosa	130	2.75	Teeth
53	1.92	Lumbar spine cortical	131	1.04	Testes_left
54	1.112	Lumbar spine spongiosa	132	1.04	Testes_right
55	1.92	Sacrum cortical	133	1.03	Thymus
56	1.031	Sacrum spongiosa	134	1.04	Thyroid
57	1.92	Sternum cortical	135	1.05	Tongue (inner part)
58	1.041	Sternum spongiosa	136	1.03	Tonsils
59	1.1	Cartilage_Head	137	1.03	Ureter_left
60	1.1	Cartilage_trunk	138	1.03	Ureter_right
61	1.1	Cartilage_arms	140	1.04	Urinary bladder wall
62	1.1	Cartilage_legs	141	1.04	Urinary bladder contents
63	1.05	Brain	143	0.0012	Air inside the body
64	0.95	Breast_left_adipose tissue	144	1.09	Skin at top and bottom
65	1.02	Breast_left_glandular tissue	151	3.667	NaI crystal
66	0.95	Breast_right_adipose tissue	152	1.8488	Be
67	1.02	Breast_right_glandular tissue	153	0.0012	Air inside the steel room
68	1.05	Eye lens_left	155	4.51	CsI crystal
69	1.05	Eye bulb_left	156	7.86	Side SS
70	1.05	Eye lens_rt	157	7.86	Front SS

Cell No.	Density (g/cc)	Material	Cell No.	Density (g/cc)	Material
71	1.05	Eye bulb_rt	158	8.96	Cu
72	1.03	Gall bladder wall	159	8.65	Cd
73	1.03	Gall bladder contents	160	11.3	Pb
74	1.04	Stomach wall	161	7.86	Steel
75	1.04	Stomach contents	154	----	Void outside world
76	1.04	Small intestine wall			