SCIENCE OLYMPIAD FOUNDATION

SOF NCO
NATIONAL CYBER OLYMPIAD

The actual test paper has 50 questions. Time allowed : 60 minutes. There are 3 sections: 10 questions in section I, 10 in section II and 30 in section III.

SYLLABUS

Section – I (Mental Ability) : Regional and Roman Numerals, Numbers up to one Lakh, Multiples and Factors, Fractions and Decimals, Addition, Subtraction, Multiplication, Division, Estimation, Geometrical Shapes, Measurement, Time, Money, Perimeter, Area, Angles, Pictorial Representation of Data, Prime and Composite Numbers, HCF and LCM.

Section – II (Logical and Analytical Reasoning) : Problems Based on Figures, Odd One Out, Series Completion, Coding-Decoding, Mathematical Reasoning, Analytical Reasoning, Mirror Images, Embedded Figures.

Section – III (Computers and IT) : Input and Output Devices, Hardware, Software, Storage Devices, Memory – Primary & Secondary Memory, MS-Paint, MS-Word, Introduction to MS-PowerPoint, Introduction to Multimedia, Internet, Computer Networks, Using Windows, Latest Developments in the field of IT.
**Questions are based on Windows 7 and MS-Office 2010.**

SOF NSO
NATIONAL SCIENCE OLYMPIAD

The actual test paper has 50 questions. Time allowed : 60 minutes. There are 2 sections: 15 questions in section I and 35 in section II.

SYLLABUS

Section – I (Mental Ability) : Number Sense, Regional and Roman Numerals, Numbers up to Lakhs, Multiples and Factors, Fractional Numbers, Addition, Subtraction, Multiplication, Division, Decimals, Geometrical Shapes and Angles, Symmetry, Measurement of Length, Time, Money, Weight, Perimeter and Area of Square, Rectangle and Circle, Pictorial Representation of Data, HCF and LCM, Problems Based on Figures, Odd One Out, Series Completion, Coding-Decoding, Mathematical Reasoning, Mirror Images, Embedded Figures, Direction Sense, Patterns, Number Ranking, Alphabetical Test.

Section – II (Science) : Animals, Plants and Food, Human Body and Health, Water, Matter, Natural Resources and Calamities, Earth and Universe, General Science.

SOF IMO
INTERNATIONAL MATHEMATICS OLYMPIAD
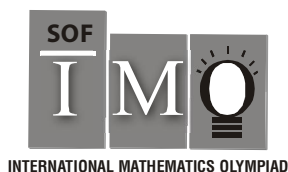
The actual test paper has 50 questions. Time allowed : 60 minutes. There are 3 sections: 20 questions in section I, 20 in section II and 10 in section III.
Section – I : Logical Reasoning **Section – II :** Mathematical Reasoning
Section – III : Everyday Mathematics

SYLLABUS

Number sense, Numeral and Number Name (7 and 8 digit numbers), Roman Numbers, Addition, Subtraction, Multiplication, Division, Factors and Multiples, LCM, HCF, Rules of Divisibility, Whole, Prime and Composite Numbers, Fractions, Decimals, Geometrical Shapes & Angles, Circles, Symmetry, Measurement of Length, Mass, Capacity, Perimeter and Area of Rectangle, Square, Measurement of Volume, Temperature, Time and Various Operations on Time, Relationship Between Seconds, Minutes and Hours, Money, Representation of Data in Pictorial Form, Patterns, Formation of Numbers and Figures, Direction Sense, Number Ranking and Alphabetical Test, Series, Odd One Out.

SOF IEO
INTERNATIONAL ENGLISH OLYMPIAD
IN ASSOCIATION WITH
BRITISH COUNCIL

The actual test paper consists of 50 questions. Time allowed : 60 minutes. There are 3 sections.
SYLLABUS

Section-I : Word and Structure Knowledge : Prepositions, Tenses, Irregular verbs, Pronouns, Modals quantifiers, etc. , Spellings, Collocations, Phrasal verbs, Idioms, Homonyms and homophones, Words related to feelings, Travel, Food, Health, appearance, Character, etc.
**Section-II : Reading :** Search for and retrieve information from various text types like news headlines, Messages, Letters, etc., Understand information given in News reports, Time tables, Messages, etc., Acquire broad understanding of and look for specific information in short texts like messages, menu card dialogues, etc.
Section-III : Spoken and Written Expression : Ability to understand situation-based variations in functions like requests, Refusals apologies, etc. and the use of conjunctions.

National Cyber Olympiad

MENTAL ABILITY

1. Which of the following are supplementary angles?
(A) 180°, 180°　　(B) 100°, 80°　　(C) 50°, 50°　　(D) 40°, 50°

2. The cost of a table is ₹ 858.90. Find the cost of 18 tables.
(A) ₹ 15460.2　　(B) ₹ 18245.8　　(C) ₹ 2181.8　　(D) ₹ 14519.80

3. The area of the shaded region is _____.

(A) 264 m²

(B) 192 m²

(C) 190 m²

(D) 36 m².

4 m

30 m　　2 m

40 m

(figure not drawn to scale)
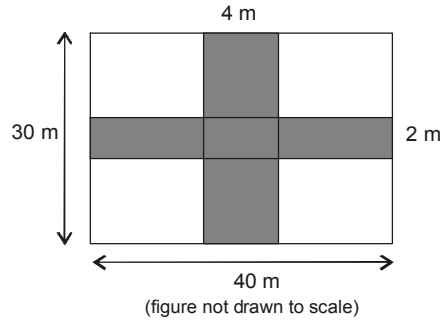
4. Which of the figures shows correct fraction for $\frac{1}{3}$?
(A) × × × × ⓧ ×　　(B) ÷ ÷ ÷ ÷ ⓓ　　(C) ○ ○ ○ ⓞ ⓞ　　(D) ○ ○ ○ ○ ⓞ ⓞ ⓞ

LOGICAL AND ANALYTICAL REASONING

5. $5\frac{3}{4}$ = 5 + (□ + □ + □). Here, □ stands for _____.
(A) $\frac{3}{4}$　　(B) $\frac{1}{4}$　　(C) 3　　(D) 4

6. How many times exactly two X's occurs together?

X Y X X Y X Y Y X X X Y Y X X Y X Y Y X X

(A) 5　　(B) 4　　(C) 2　　(D) 3

7. Library is to book as book is to _____.
(A) Page　　(B) Copy　　(C) Binding　　(D) Cover

8. If the day before yesterday is two days after Monday then what day is it today ?
(A) Monday　　(B) Tuesday　　(C) Wednesday　　(D) Saturday

COMPUTERS AND INFORMATION TECHNOLOGY

9. Multimedia is used for many purposes like _____.
(A) Education　　(B) Advertising　　(C) Playing games　　(D) All of these

10. Find the odd term out.
(A) Scanner　　(B) Pointing device　　(C) OMR　　(D) Printer

11. In MS Powerpoint, which of the following is NOT a slide layout?
(A) Title slide　　(B) Office theme
(C) Title and content　　(D) Two content

12. Computer cannot perform anything on its own. It can process only when it is instructed to do so. These sets of instructions that are fed in by the user are termed as
(A) Hardware　　(B) Software
(C) Flowcharts　　(D) Programs

13. In MS Word, which tab would you select to insert a shape in a document?
(A) Insert　　(B) Review
(C) View　　(D) File

14. The small picture representing a program is a _____.

(A) Icon (B) File (C) Folder (D) Drive

15. While working in MS-Paint, the option which is used to show the drawing in a small reference window is _____.

(A) Show grid (B) Zoom in (C) View bitmap (D) Show thumbnail

# National Science Olympiad

MENTAL ABILITY

1. A circle is drawn, with centre point *O*.

The line segment from point *A* to point *B*, through the centre of the circle, is called a/an _____.

(A) Arc (B) Circumference

(C) Radius (D) Diameter

2. Which could be the measures of the angles of a right triangle ?

(A) 80°, 50°, 90° (B) 36°, 90°, 54° (C) 44°, 90°, 40° (D) 110°, 90°, 20°

3. A race started at 11:16 a.m. The first person to cross the finish line came in at 1:22 p.m. How long did it take the first person to reach the finish line ?

(A) 13 hours 38 minutes (B) 2 hours 6 minutes
(C) 1 hours 6 minutes (D) 2 hours 38 minutes

4. An arrow makes an angle with the level ground, as shown in the picture. Which is the best name for this angle ?

(A) Obtuse (B) Right

(C) Straight (D) Acute

5. If A = 5, which number sentence is true ?

(A) A × 4 = 20 (B) A – 3 = 8 (C) 12 + A = 7 (D) 15 ÷ A = 10
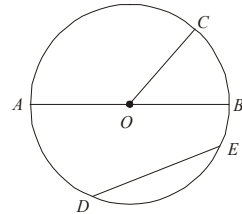
SCIENCE

6. Where will you put termites in the following table ?

	Two pairs of legs	Three pairs of legs
With wings	P	Q
Without wings	R	S

(A) P (B) Q (C) R (D) S

7. If your diet is deficient in sour fruits then you are supposed to suffer from

(A) Rickets (B) Beri Beri (C) Scurvy (D) Night blindness.

8. Which of the following traits is/are inherited ?

(i) Talking in different languages (ii) Love for reading

(iii) Love for knitting (iv) Colour of eyes (v) Love for music

(A) (iv) only (B) (i) & (iv) (C) (i), (iv) & (v) (D) (iv) & (v)

9. A small baby plant coming out of a seed is

(A) Grain (B) Root (C) Dispersal (D) Seedling

10. Which of these is needed to measure the mass of a rock?

(A) A balance (B) A barometer (C) A metric ruler (D) Thermometer

11. Which of these can most easily attract magnets ?
(A) Wood (B) Notebook (C) Iron nails (D) Eraser

12. The substance that makes plants green is known as –
(A) Water (B) Chlorophyll (C) Carbon dioxide (D) Calcium

13. Today, which human activity is responsible for endangering the greatest number of land animal species?
(A) Accidental starting of forest fires (B) Cutting wildflowers in national parks
(C) Destruction of habitats (D) Hunting for food and sport

14. Look at the figure. It shows lunar eclipse. Where will be the Earth in it ?
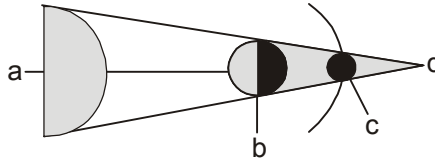
(A) a (B) b (C) c (D) d

15. If there is no rain, crops fail to grow. This condition will lead to
(A) Flood (B) Drought (C) Famine (D) Both (B) & (C).

 International Mathematics Olympiad

1. Harry had 500 coins in a jar. He sorted the coins into 25 different stacks. Each stack had the same number of coins. How many coins were in each stack?
(A) 20 (B) 45 (C) 25 (D) 12

2. There are 914 students enrolled in Elementary School. Middle School has 276 fewer students enrolled. How many students are enrolled at Middle School?
(A) 642 (B) 762 (C) 1,190 (D) 638

3. Which of the following shows a reflection (flip) of the shaded shape across the dotted line?

(A)   (B)   (C)   (D)

4. Which of the following has exactly 6 vertices?

(A)   (B)   (C)   (D)
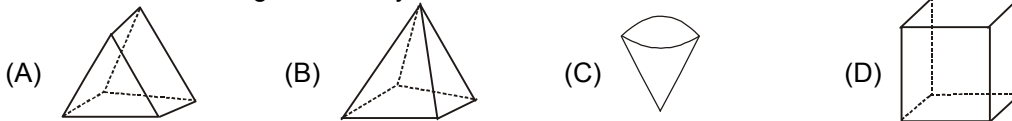
5. Which figure is quadrilateral?

S T W X
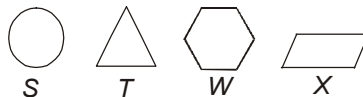
(A) Figure *T* (B) Figure *S* (C) Figure *X* (D) Figure *W*

6. Which figure has an area of 8 sq. units and a perimeter of 12 units? (Each square block is of side 1 unit).

(A)   (B)

(C)   (D)
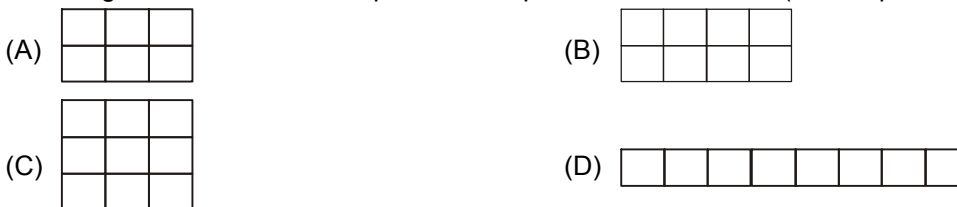
7. Tom left home at 7 : 15 a.m. to go to work. He returned home at 4 : 45 p.m. What is the total amount of time Tom was away from home?
(A) 7 hours 30 minutes (B) 9 hours 30 minutes
(C) 3 hours 30 minutes (D) 8 hours 30 minutes

8. A rule was used to make the pattern shown below.

51, 45, 39, 33, 27, 21 . . .

Which could be the rule used to make the pattern?

(A) Divide by 7   (B) Divide by 6   (C) Subtract 7   (D) Subtract 6

9. Which of these could be solved by using the open sentence $S - 7 = ?$

(A) Rita collected 7 more seashells than Henry. If S is the number of seashells that Henry collected, how many did Rita collect ?

(B) Bony collected 7 fewer seashells than Kamal. If S is the number of seashells Kamal collected, how many did Bony collect ?

(C) David needs 7 seashells more to complete his collection. If S is the number of seashells he has so far, how many will he have after he gets 7 more ?

(D) Anita filled 7 boxes with seashells. If S is the number of seashells she put in each box, how many seashells did she use in all ?

10. Which figure would result when the symbol is flipped over the dotted line?

(A) **Ǝ**   (B) **ɯ**   (C) **E**   (D) **ɯ**

E

11. Simon and Julie need 72 paper flowers to complete a bulletin board. They have 19 paper flowers so far. Which operation should be used in the box below to find how many more paper flowers they need?

72 ? 19 =

(A) Addition   (B) Division   (C) Multiplication   (D) Subtraction

12. Shelley is ordering a skirt from a catalog. She can choose one of two lengths: a short skirt or a long skirt. Then she can choose one of three fabric patterns: stripes, plaid, or flowers. At most how many different combinations could Shelley order choosing a length and a fabric pattern?

Short   Long
Skirts

Stripes   Plaid   Flowers
Fabric Patterns
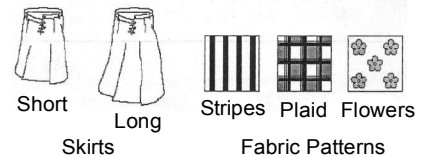
(A) 2   (B) 3   (C) 5   (D) 6

13. A tangram is an ancient Chinese puzzle. It is made of seven pieces that fit together to make a square.

Which of the angles marked in the tangram puzzle given is an obtuse angle?

(A) Angle A (B) Angle B

(C) Angle C (D) Angle D
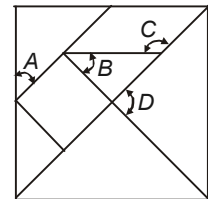
14. The given picture shows a spinner for an animal board game. In which animal section is spinner least likely to land?

(A)   (B)

(C)   (D)
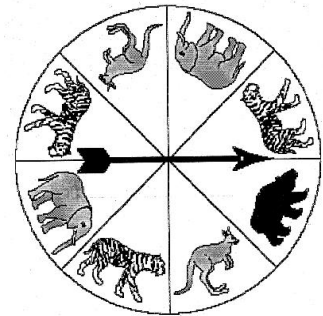
15. The following table shows the distance around four different planets.

Which planet's distance has the numeral 3 in the ten-thousands place?

(A) Jupiter   (B) Mars

(C) Mercury   (D) Neptune

DISTANCE AROUND

Planet	Distance Around (in miles)
Jupiter	88,732
Mars	4,213
Mercury	3,032
Neptune	30,603

WORD AND STRUCTURE KNOWLEDGE

1. Complete each word using the letters from the box.

    I can't wait to ___wrap my birthday presents.

    | (A) In | (B) Im | (C) Un | (D) None of these |

2. Choose the odd one out.

    (A) Build   (B) Separate   (C) Construct   (D) None of these

3. Complete the sentence with the correct spelling of the word.

    I like to read _____to my brother.

    (A) Allowed   (B) Aloud   (C) Alaud   (D) None of these

4. Match the underlined phrase with its correct meaning in the box.

    Mother tried <u>in vain</u> to make her finish her milk.

    | (A) Unable to do something | (B) Using a pipe |
    | (C) With a lot of effort | (D) None of these |

5. Find the odd one out.

    (A) Teacher : Student   (B) Shopkeeper : Customer

    (C) Doctor : Librarian   (D) None of these

6. You have to go _____ this door to reach the library.

    (A) From   (B) By   (C) Through   (D) None of these

Direction (Q. No. 7 and 8) : Spot the error in the sentence.

7. <u>This doll</u> / <u>was my</u>/ <u>before I gave it to you</u>.   No error

      (A)   (B)   (C)   (D)

8. <u>If a student is not well,</u> / <u>he must to stay home</u> / <u>and rest till he feels better.</u>   No error

        (A)   (B)   (C)   (D)

9. Given below are three sentences. One of them is incorrect. Find the incorrect sentence and mark it in your answer sheet.

    (A) The Amazon river is the largest river in the world.

    (B) Sangeeta is watching television.

    (C) I will start my course on June.

    (D) None of these.

10. If he is planning to participate in the marathon, he _____ practice regularly.

    (A) Should   (B) Shall

    (C) Can   (D) None of these

Direction (Q. No. 11 and 12) : Read the passage and answer the following questions.

Miss Jabber Blabber

The teacher, Mr. Rao walked to the blackboard and wrote up a list of words. He pointed to the list. "I want you to read these words to yourselves," he said. "Then, without talking to your neighbour, choose any word from the list and draw a picture of it in your notebook."

Joy squealed very thrilled.

I stared at the words. Then I tapped my chin. And I scratched my head. Finally I reached out to Rahul and tapped on his head.

"Psst, Rahul", I whispered, "which word are you drawing?"

Joy jumped up from her seat and pointed at me.

"Sir, Sir, Jenny is talking to her neighbour."

That's how Joy earned her famous name, one that she never liked, "J Joy Jabber Blabber"!

11. Joy complained to the teacher because
   (A) She couldn't do her work.
   (B) They were not including her in their conversation.
   (C) She wanted to show the teacher that she was an obedient student.
   (D) None of these

12. Which of the following words would Rahul and Jenny use to describe Joy?
   (A) Irritating   (B) Liar   (C) Friendly   (D) None of these

SPOKEN AND WRITTEN EXPRESSION

Direction (Q. No. 13 to 15) : Find one sentence to complete the dialogue.

13. Mother: When did you come back from the zoo? Did you like it there?
   Minu : ....
   (A) Yes, I did.   (B) I will think about it. (C) I cannot come   (D) None of these

14. Teacher 1 *:* You have got a list of students. How many of them are coming to the picnic?
   Teacher 2 : ....
   (A) I don't know.   (B) I can't see them. (C) I haven't got any. (D) None of these

15. Sentence 1. I am celebrating my doll's birthday tomorrow.
   Sentence 2. ....
   Sentence 3. You are invited.
   (A) There is a party at my place at 6:00 pm.
   (B) Please come with a gift.
   (C) Don't come after 6:00!
   (D) None of these

1. NAME : If your name is SACHIT A IYER, then you should write as follows :

| S | A | C | H | I | T | | A | | I | Y | E | R | | | | | | | | | |

2. FATHER'S NAME : If your father's name is SATISH KUMAR IYER, then you should write as follows :

| S | A | T | I | S | H | | K | U | M | A | R | | I | Y | E | R | | | | | |

SCHOOL CODE

3. SCHOOL CODE
Write your school code i.e. if your school code is MH0547 darken as follows :

← Darken the circle

4. CLASS
If you are in Class 10, then you should darken as follows :

5. ROLL NO.
If your roll no. is 587, then you should write and darken the circles as follows :

Darken the circle →

CLASS | **ROLL NO.**

6. GENDER
If you are a boy, then darken **Male** circle

GENDER

MALE ● FEMALE ○

CORRECT ☞ way to darken the circle ●

WRONG ☞ way to darken the circle

7. If your choice for Answer 1 is C, then you should darken the circle as follows : **1.** Ⓐ Ⓑ ● Ⓓ

MARK YOUR ANSWERS WITH HB PENCIL/BALL POINT PEN (BLUE/BLACK)

National Cyber Olympiad

1. Ⓐ Ⓑ Ⓒ Ⓓ   2. Ⓐ Ⓑ Ⓒ Ⓓ   3. Ⓐ Ⓑ Ⓒ Ⓓ   4. Ⓐ Ⓑ Ⓒ Ⓓ   5. Ⓐ Ⓑ Ⓒ Ⓓ
6. Ⓐ Ⓑ Ⓒ Ⓓ   7. Ⓐ Ⓑ Ⓒ Ⓓ   8. Ⓐ Ⓑ Ⓒ Ⓓ   9. Ⓐ Ⓑ Ⓒ Ⓓ   10. Ⓐ Ⓑ Ⓒ Ⓓ
11. Ⓐ Ⓑ Ⓒ Ⓓ   12. Ⓐ Ⓑ Ⓒ Ⓓ   13. Ⓐ Ⓑ Ⓒ Ⓓ   14. Ⓐ Ⓑ Ⓒ Ⓓ   15. Ⓐ Ⓑ Ⓒ Ⓓ

National Science Olympiad

1. Ⓐ Ⓑ Ⓒ Ⓓ   2. Ⓐ Ⓑ Ⓒ Ⓓ   3. Ⓐ Ⓑ Ⓒ Ⓓ   4. Ⓐ Ⓑ Ⓒ Ⓓ   5. Ⓐ Ⓑ Ⓒ Ⓓ
6. Ⓐ Ⓑ Ⓒ Ⓓ   7. Ⓐ Ⓑ Ⓒ Ⓓ   8. Ⓐ Ⓑ Ⓒ Ⓓ   9. Ⓐ Ⓑ Ⓒ Ⓓ   10. Ⓐ Ⓑ Ⓒ Ⓓ
11. Ⓐ Ⓑ Ⓒ Ⓓ   12. Ⓐ Ⓑ Ⓒ Ⓓ   13. Ⓐ Ⓑ Ⓒ Ⓓ   14. Ⓐ Ⓑ Ⓒ Ⓓ   15. Ⓐ Ⓑ Ⓒ Ⓓ

International Mathematics Olympiad

1. Ⓐ Ⓑ Ⓒ Ⓓ   2. Ⓐ Ⓑ Ⓒ Ⓓ   3. Ⓐ Ⓑ Ⓒ Ⓓ   4. Ⓐ Ⓑ Ⓒ Ⓓ   5. Ⓐ Ⓑ Ⓒ Ⓓ
6. Ⓐ Ⓑ Ⓒ Ⓓ   7. Ⓐ Ⓑ Ⓒ Ⓓ   8. Ⓐ Ⓑ Ⓒ Ⓓ   9. Ⓐ Ⓑ Ⓒ Ⓓ   10. Ⓐ Ⓑ Ⓒ Ⓓ
11. Ⓐ Ⓑ Ⓒ Ⓓ   12. Ⓐ Ⓑ Ⓒ Ⓓ   13. Ⓐ Ⓑ Ⓒ Ⓓ   14. Ⓐ Ⓑ Ⓒ Ⓓ   15. Ⓐ Ⓑ Ⓒ Ⓓ

International English Olympiad

1. Ⓐ Ⓑ Ⓒ Ⓓ   2. Ⓐ Ⓑ Ⓒ Ⓓ   3. Ⓐ Ⓑ Ⓒ Ⓓ   4. Ⓐ Ⓑ Ⓒ Ⓓ   5. Ⓐ Ⓑ Ⓒ Ⓓ
6. Ⓐ Ⓑ Ⓒ Ⓓ   7. Ⓐ Ⓑ Ⓒ Ⓓ   8. Ⓐ Ⓑ Ⓒ Ⓓ   9. Ⓐ Ⓑ Ⓒ Ⓓ   10. Ⓐ Ⓑ Ⓒ Ⓓ
11. Ⓐ Ⓑ Ⓒ Ⓓ   12. Ⓐ Ⓑ Ⓒ Ⓓ   13. Ⓐ Ⓑ Ⓒ Ⓓ   14. Ⓐ Ⓑ Ⓒ Ⓓ   15. Ⓐ Ⓑ Ⓒ Ⓓ

ANSWERS

National Cyber Olympiad			National Science Olympiad			International Mathematics Olympiad			International English Olympiad		
1. (B)	2. (A)	3. (B)	1. (D)	2. (B)	3. (B)	1. (A)	2. (D)	3. (C)	1. (C)	2. (B)	3. (B)
4. (A)	5. (B)	6. (D)	4. (A)	5. (A)	6. (B)	4. (A)	5. (C)	6. (B)	4. (C)	5. (C)	6. (C)
7. (A)	8. (D)	9. (D)	7. (C)	8. (A)	9. (D)	7. (B)	8. (D)	9. (B)	7. (B)	8. (B)	9. (C)
10. (D)	11. (B)	12. (D)	10. (A)	11. (C)	12. (B)	10. (A)	11. (D)	12. (D)	10. (A)	11. (C)	12. (A)
13. (A)	14. (A)	15. (D)	13. (C)	14. (B)	15. (D)	13. (C)	14. (A)	15. (D)	13. (A)	14. (A)	15. (A)