SOF
SCIENCE OLYMPIAD FOUNDATION

SAMPLE PAPER
2014-15

CLASS 6

NCO
NATIONAL CYBER OLYMPIAD

The actual test paper has 50 questions. Time allowed : 60 minutes. There are 4 sections: 10 questions in section I, 10 in section II, 25 in section III and 5 in section IV.

SYLLABUS

Section – I (Mental Ability) : Knowing our Numbers, Whole Numbers, Playing with Numbers, Basic Geometrical Ideas, Understanding Elementary Shapes, Integers, Fractions, Decimals, Data Handling, Mensuration, Algebra, Ratio and Proportion, Symmetry, Practical Geometry.

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) : History and Generation of Computers, Types of Computers, MS-Windows, MS-Word, MS-PowerPoint, Internet & E-mail, Introduction to QBasic, Hardware, Software, Input & Output Devices, Memory & Storage Devices, Latest Developments in the field of IT.

Section – IV (Achievers Section) : Syllabus as per Section III.

Questions are based on Windows 7 and MS-Office 2010.

NSO
NATIONAL SCIENCE OLYMPIAD

The actual test paper has 50 questions. Time allowed : 60 minutes. There are 3 sections: 15 questions in section I, 30 in section II and 5 in section III.

SYLLABUS

Section – I (Mental Ability) : Knowing our Numbers, Whole Numbers, Playing with Numbers, Basic Geometrical Ideas, Understanding Elementary Shapes, Integers, Fractions, Decimals, Data Handling, Mensuration, Algebra, Ratio and Proportion, Symmetry, Practical Geometry. Logical Reasoning.

Section – II (Science) : Motion and Measurement of Distances, Light, Shadows and Reflections, Electricity & Circuits, Fun with Magnets, Air & Water, Sorting and Separation of Materials, Changes Around Us, Living Organisms & Their Surroundings, Food, Health & Hygiene, Fibres to Fabrics.

Section – III (Achievers Section) : Syllabus as per Section II.

IMO
INTERNATIONAL MATHEMATICS OLYMPIAD

The actual test paper has 50 questions. Time allowed : 60 minutes. There are 4 sections: 20 questions in section I, 15 in section II, 10 in section III and 5 in section IV.

SYLLABUS

Section – I (Logical Reasoning) : Verbal and Non-Verbal Reasoning

Section – II (Mathematical Reasoning) : Integers, Fractions and Decimals, Exponents and Powers, Algebraic Expressions, Simple Linear Equations, Lines and Angles, Concept of Percentage, Profit and Loss, Simple Interest, Probability, Properties of Triangle, Symmetry, Congruence of Triangles, Rational Numbers, Perimeter and Area, Data Handling, Arithmetical Ability, Visualising Solid Shapes.

Section – III (Everyday Mathematics) : The Syllabus of this section will be based on the syllabus of Mathematical Reasoning.

Section – IV (Achievers Section) : Syllabus as per Section II.

IEO
INTERNATIONAL ENGLISH OLYMPIAD
IN ASSOCIATION WITH
BRITISH COUNCIL

The actual test paper consists of 50 questions. Time allowed : 60 minutes. There are 4 sections.

SYLLABUS

Section – I (Word and Structure Knowledge) : Prepositions, Continuous tenses, Adjectives and Adverbs, Agreement, etc., Spellings, Collocations, Phrasal verbs, Idioms, and Words related to everyday problems, Relationships, Health and Medicine, Travel, etc.

Section – II (Reading) : Search for and retrieve information from various text types like News headlines, Brochures, Formal letters, etc. ., Understand information given in News reports, Brochures, Itenary, etc., Acquire broad understanding of and look for specific information in Short narratives, Time tables, News stories, etc.

Section – III (Spoken and Written Expression) : Ability to understand situation-based variations in functions like agreement and disagreement, Requests, Refusals apologies, etc. and also distinguish differences in the use of conjunctions.

Section – IV (Achievers Section) : Syllabus as per Sections I, II and III.

N C O National Cyber Olympiad

1. Find the number that should replace the box.
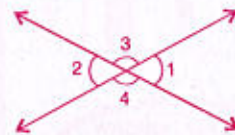
    12 : 21 :: 8 : □

    (A) 14　　　　(B) 16　　　　(C) 18　　　　(D) 20

2. The product of two numbers is 3000. If the H.C.F. of the number is 10, then L.C.M. will be

    (A) 30　　　　(B) 300　　　　(C) 305　　　　(D) 5

3. A basket contains 300 mangoes. 75 mangoes were distributed among students. The percentage of mangoes left in the basket is

    (A) 25%　　　　(B) 30%　　　　(C) 50%　　　　(D) 75%

4. For the given figure, which of the following is false?

    (A) $\angle 1 = \angle 2$

    (B) $\angle 4 = \angle 3$

    (C) $\angle 3 + \angle 1 = 180°$

    (D) $\angle 1 = \angle 4$

LOGICAL AND ANALYTICAL REASONING

5. 11111 − 1111 + 111 − 11 + 1 is _____ .

    (A) 12345　　　　(B) 10101　　　　(C) 9901　　　　(D) 102

6. 6 + 0 ÷ 6 × 2 + 1 equals _____ .

    (A) 18　　　　(B) 7　　　　(C) 3　　　　(D) 0

7. If □ + 50 = △ and □ − 50 = ○,

    what is the correct relation between △ and ○?

    (A) 50 + ○ = △　　(B) 50 − ○ = △　　(C) 100 + ○ = △　　(D) 100 − ○ = △

8. I think of a number, add 10 to it and divide the answer by 2. Let the resulting number be ¤. Starting with ¤, how can I get my original number back ?

    (A) Multiply ¤ by 2 and then subtract 10 from the result

    (B) Divide ¤ by 2 and then add 10 to the result

    (C) Multiply ¤ by 2 and then add 10 to the result

    (D) Add 2 to ¤ and then divide the resulting number by 10

COMPUTERS AND INFORMATION TECHNOLOGY

9. In MS Word, to insert the header and footer in a document, which tab should you go to?

    (A) View　　　　　　　　　　(B) Page Layout

    (C) Home　　　　　　　　　　(D) Insert

10. The software program that acts as an interface between the user and the www is _____ .

    (A) E-mail　　　　　　　　　(B) Internet

    (C) Protocol　　　　　　　　(D) Web browser

11. PARAM is a _____ .

    (A) Super computer　　　　(B) Mini computer

    (C) Main computer　　　　　(D) Micro computer

12. Which of the following is a volatile memory ?

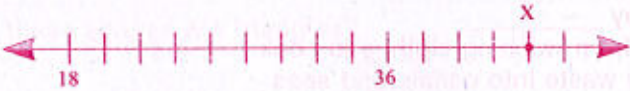   (A) ROM　　　　(B) RAM　　　　(C) EPROM　　　　(D) PROM

13. By clicking which button one can return the window to its previous size ?

    (A) Maximize button　　　　(B) Minimize button

    (C) Restore button　　　　　(D) Close button

14. To switch between the running applications, _____.
- (A) Press F1
- (B) Press ALT + F4
- (C) Press TAB
- (D) Press and hold down ALT and press TAB

15. In MS PowerPoint, Bullets and Numbering option is in _____ group of Home tab.
- (A) Slides
- (B) Font
- (C) Paragraph
- (D) Drawing

N S O National Science Olympiad
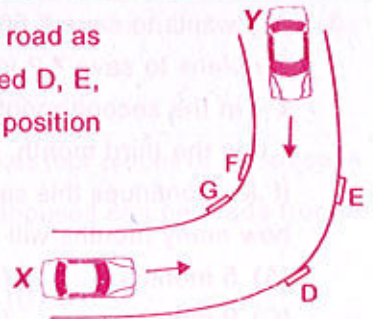
MENTAL ABILITY

1. Find L.C.M. of following numbers.

12, 24, 48, 108
- (A) 504
- (B) 432
- (C) 405
- (D) 440

2. Gita has 558 flags to pack into boxes. Each box will hold 62 flags. How many boxes will Gita need to hold all the flags ?
- (A) 34,596
- (B) 0.9
- (C) 9
- (D) 620

3.

Which best describes the location of point X ?
- (A) 58
- (B) 40
- (C) 44
- (D) 54

4. What is the area of a rectangle that measures 5 metres wide and 6 metres long ?
- (A) 11 m²
- (B) 22 m²
- (C) 30 m²
- (D) 16 m²

5. If n represents a number, which of these means the same as the expression $n + 6$?
- (A) Six more than a number
- (B) Six divided by a number
- (C) Six less than a number
- (D) Six times a number

SCIENCE

6. The body system that gives you support and allows movement is the
- (A) Skeletal system
- (B) Circulatory system
- (C) Respiratory system
- (D) Excretory system

7. Which food group BEST provides the necessary nutrients for healthy teeth and bones ?
- (A) Milk and dairy products
- (B) Fruits and vegetables
- (C) Bread and cereal
- (D) Meat

8. What adaptation the given organism shows ?
- (A) Strong hind leg muscles
- (B) Bones are hollow
- (C) Feet are webbed
- (D) Both (B) & (C)

9. Two cars X and Y are travelling in opposite directions on a narrow road as shown here. Four possible positions for placing a mirror are labelled D, E, F and G. In order to avoid an accident, a mirror could be placed at position _____.
- (A) E
- (B) D
- (C) G
- (D) F

10. Spinning of yarn on large scale is done with spinning machine, while the manual spinning is done with hand operated device known as
(A) Takli   (B) Charkha   (C) Handloom   (D) Both (A) & (B)

11. Three glasses P, Q and R having equal amount of water were taken and equal amount of salt was added to each one of them. After that, P was cooled, Q was heated and R was left undisturbed. Water in which glass will now taste most salty?

(A) P   (B) Q   (C) R   (D) All will taste the same

12. Which is usually NOT a reason why foods are processed ?
(A) More nutritious
(B) Easier to package
(C) Last longer on the shelf
(D) Easier to transport to the store

13. What force pulls things toward the center of Earth ?
(A) Friction   (B) Gravity   (C) Magnetism   (D) Electricity

14. We can recycle water by _____
(A) Reusing the water from washing clothes to cook
(B) Discharging factory waste into canals and seas
(C) Discharging sewage and waste materials into the ocean
(D) Reusing the water from washing clothes to flush in toilets

15. If you dissolved a lot of salt in some water in a large flat dish and put the dish in bright sunlight on a hot day, what would be left in the dish after a long time ?
(A) Dry salt
(B) Water with no salt
(C) The same salty water as before
(D) Nothing

I M Ọ International Mathematics Olympiad

LOGICAL REASONING

1. The following are the results from the class election. If 150 students voted, about how many votes did Ram receive?

Class President Results

(A) 25   (B) 38
(C) 50   (D) 75

2. The weekly milk order for the New Guest house includes 40 litres of low-fat milk and 15 litres of chocolate milk. What is the ratio of the number of low-fat milk to chocolate milk in the New Guest house's weekly milk order?
(A) 3 : 1   (B) 5 : 1   (C) 5 : 3   (D) 8 : 3

3. Joy wants to save ₹ 50 to buy a pair of roller blades. He plans to save ₹ 2 in the first month, ₹ 4 in the second month, ₹ 6 in the third month, and ₹ 8 in the fourth month. If Joy continues this savings pattern, how many months will Joy take to save ₹ 50 ?

Month	Amount saved during month	Total savings
1	₹ 2	₹ 2
2	₹ 4	₹ 6
3	₹ 6	₹ 12
4	₹ 8	₹ 20
.	.	.
.	.	.
.	.	.

(A) 5 months   (B) 7 months
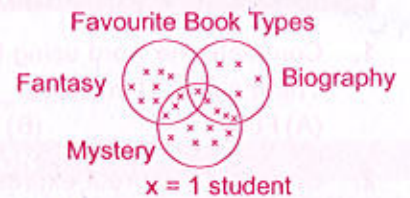(C) 9 months   (D) 13 months

4. $\triangle\triangle = \square\triangle\square$, $\triangle\square = \bigcirc\bigcirc$, $\triangle = 50$

Using the diagram above, which of the following statements is true?

(A) $\bigcirc < \triangle$ (B) $\square > \bigcirc$ (C) $\triangle < \square$ (D) $\triangle < \bigcirc$

5. According to this diagram, how many students have more than one favourite type of book?

    Favourite Book Types

(A) 3   (B) 5

(C) 7   (D) 8

Fantasy ... Biography

Mystery

$x = 1$ student

MATHEMATICAL REASONING

6. In Parul's garden, there are 25 rows of vegetables. She has five more rows of peppers than tomatoes and two fewer rows of cucumbers than tomatoes. If y represents the number of rows of tomatoes in the garden, which number sentence can be used to find how many rows of each vegetable were planted?

(A) $y + (y + 5) + (y + 2) + y = 25$ (B) $(y + 5) + y = 25$

(C) $(y + 5) + (y - 2) = 25$ (D) $(y + 5) + (y - 2) + y = 25$

7. What percent of these shapes are triangles?

(A) 0.25%   (B) 3%

(C) 12%   (D) 25%

$\triangle\bigcirc\square\triangle\triangle$
$\bigcirc\triangle\triangle\square$
$\bigcirc\triangle\square$

8. Which of the following statements is true?

(A) $2 > -2$ (B) $2 < -4$ (C) $-2 < -4$ (D) $-4 > 4$

9. The five-day forecast for the South Pole lists the low temperatures (in Fahrenheit) as $-24°$, $-28°$, $-29°$, $-25°$, and $-30°$. Which choice shows the temperatures in order from the lowest to the highest?

(A) $-24°, -25°, -28°, -29°, -30°$ (B) $-30°, -28°, -29°, -25°, -24°$

(C) $-30°, -29°, -28°, -25°, -24°$ (D) $-30°, -29°, -28°, -24°, -25°$

10. Which of the following fractions is closest to 0 ?

(A) $\frac{5}{12}$ (B) $\frac{2}{3}$ (C) $\frac{5}{6}$ (D) $\frac{3}{4}$

11. What is the value of the following expression? $3 + 3 \times 3(4 + 3)$

(A) 38   (B) 42   (C) 45   (D) 66

12. Mohit is selling candy bars. He has chocolate bars, nut bars, and mint bars. If a customer buys two bars, and the bars are not of the same type, how many different combinations are possible?

(A) 3   (B) 6   (C) 9   (D) 12

EVERYDAY MATHEMATICS

13. Vinita can type 28 words per minute. At this rate, how many words can Vinita type in 5.5 minutes?

(A) 154   (B) 157   (C) 159   (D) 162

14. At a school, there are 704 desks to place into 22 classrooms. If the same number of desks is placed in each classroom, how many desks will be in each room?

(A) 32   (B) 34   (C) 42   (D) 44

15. The students in a wood working class were building birdhouses. It takes four pieces of wood (each piece $\frac{3}{4}$ of foot long) to build a birdhouse. At most, how many birdhouses can be made from 4 feet of wood?

(A) 1   (B) 3   (C) 4   (D) 5

WORD AND STRUCTURE KNOWLEDGE

1. Complete the word using the letters from the given below options.
   The magician had clever____ concealed several rabbits in his hat.
   (A) Fully   (B) Ness   (C) Ly   (D) lty

2. Choose the correct expression.
   (A) Bird in hand   (B) Bird in the pocket (C) Bird and hand   (D) Hand me the bird

3. Choose the odd phrase.
   (A) Take off   (B) Take on   (C) Take up   (D) Take it

4. The .... is fine today. Let's go for a picnic.
   (A) Weather   (B) Wheather   (C) Whether   (D) Wether

5. Choose the odd pair.
   (A) Cooking : Utensils   (B) Painting : Canvas
   (C) Sailing : Anchor   (D) Mountaineering : Paddle

6. Spot the error.
   This history test is so difficult / as I think / I'm going to fail. No error
               (A)   (B)   (C)   (D)

7. Spot the incorrect sentence.
   (A) Have you ever been to Burma?   (B) Was anybody injured in the accident?
   (C) How long have you been knowing him?   (D) When was the telephone invented?

8. .... Priya nor Seema have gone to see the movie.
   (A) Each   (B) Neither   (C) Both   (D) Rather

READING

Direction (Q. No. 9 and 10) : Read the paragraph and choose the correct sentence.

Noodles were originally made using grains from millet, unlike the modern variety, which is made of wheat flour. Many cultures across the world claim to have invented it, but in 2005 the remains of the world's oldest noodles were unearthed in China. The yellow strands measuring 50 cm were found in a pot in Lajia along the Yellow River. It is believed that the pot got buried in an earth quake 4000 years ago.

9. The modern day noodles are made of
   (A) Millet   (B) Grains   (C) Millet and wheat flour   (D) Wheat flour

10. We know that noodles were made thousands of years ago in China because the
    (A) Chinese claim that they invented noodles.
    (B) Oldest noodles have been discovered in China.
    (C) Historians say so.
    (D) Chinese still eat noodles.

Direction (Q. No. 11 and 12) : Read the paragraph and choose the correct sentence.

The surface of the Earth is not evenly flat. Mountains and plateaus cover large areas giving variety to the earth's surface. Mountains are spectacular features that rise several hundred metres above the surrounding land. When a hill is above 600 metres, it is generally called a mountain. If a chain of mountains exists, it is referred to as a mountain range. The Himalayas which form the northern boundary of India is one of the most spectacular mountain ranges in the world.

11. The word "evenly" in this context means

    (A) Equal   (B) Plain   (C) Level   (D) Still

12. Choose the right sentence.

    (A) Mountains and hills are the same.

    (B) Mountains are big hills.

    (C) Hills which are not very high are called mountains.

    (D) A mountain is always a part of a mountain range.

SPOKEN AND WRITTEN EXPRESSION

Direction (Q. No. 13 to 15) : Complete the paragraph. Choose the most suitable sentence.

13. Asha: Why are you in such a hurry to go home today?

    Tara: ————————————

    Asha: I am sure you are eager to see her.

    (A) I will go when I like.

    (B) Going to my home is not difficult because my sister will come with me.

    (C) My aunt is coming home from London after two years.

    (D) I am always in a hurry to go home.

14. Asif: Arun, where were you yesterday? I had come home and I found it locked.

    Arun: ————————————

    Asif: I hope you found her hale and hearty.

    (A) I like going out for long walks with my dog.

    (B) I'd gone to visit my grandmother along with my parents.

    (C) We could have gone cycling along orchard road.

    (D) My house was locked throughout this summer.

15. Sentence 1 : The Amazon river is the largest river in the world with a total river flow greater than the next ten largest rivers combined.

    Sentence 2 : ————————————

    Sentence 3 : Because of its vast dimensions, it is sometimes called *The River Sea.*

    (A) However, in terms of length it is slightly shorter than the Nile.

    (B) The Amazon river is surrounded by thick rain forest.

    (C) Hundreds of people use the Amazon river to transport goods.

    (D) The Amazon river is in South America.

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 :

CLASS **ROLL NO.**

Darken
the circle

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