SAMPLE PAPER

S O F
SCIENCE • OLYMPIAD • FOUNDATION

N C ☼ National Cyber Olympiad

The actual test paper has 50 questions. Time allowed : 60 minutes. There are 3 sections, 15 questions in section I, 15 in section II and 20 in section III.

SYLLABUS

Section – I (Mental ability) : Regional and roman numerals, Numbers up to one lakh, Multiples and factors, Fractional numbers, Addition, Subtraction, Multiplication, Division, Estimation, Geometrical shapes, Measurement, Time, Money, Perimeter, Pictorial representation of data, Prime and composite numbers, HCF and LCM.

Section – II (Logical and analytical reasoning) : Problems based on figures, Find odd numeral out, Series completion, Coding-decoding, Mathematical reasoning, Analytical reasoning, Mirror images, Embedded figures.

Section – III (Computers and IT) : About computers (General information), Parts of computer, Input/Output/Processing devices, Hardware/Software, History of computer, LOGO, MS DOS/MS Paint, Information about notepad.

N S ☼ National Science Olympiad

The actual test paper has 50 questions. Time allowed : 60 minutes. There are 2 sections, 20 questions in section I and 30 in section II.

SYLLABUS

Section – I (Mental ability) : Numerals and number name, Addition, Subtraction, Fractional numbers, Multiplication, Division, Time, Straight and curved lines, Calendar, Measurement of weight and capacity, Geometrical shapes, Money.

Section – II (Science) : Living Science, Health and diseases, Earth and Universe, Matter, Physical Science, General Science.

## I M ☼ 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

7 and 8 digit Numbers, Rounding off, Roman Numbers, Addition, Subtraction, Multiplication, Division, Factors and Multiples, Rules of divisibility, Prime and composite numbers, Fractions, Decimals, Basics geometry, Circles, Symmetry, Measurement of Length, Mass, Capacity, Perimeter and Area of rectangle and Square, Measurement of Volume, Temperature, Time cland various operations on time, Relationship between Seconds, Minutes and Hours, Money, Representation of data in Pictorial Form, Patterns Formation of Numbers and Figures.
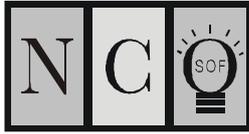
MENTAL ABILITY

1. Which of the following are supplementary angles?

(A) 180°, 180°

(B) 100°, 80°

(C) 50°, 50°

(D) 40°, 50°

2. 4 km 79 m equals

(A) 4.079 km

(B) 40.79 km

(C) 0.4079 km

(D) 407.9 km

3. 5 min. + 25 sec =

(A) 6 min. 95 sec.

(B) 3 min. 50 sec.

(C) 3 min. 65 sec.

(D) 4 min. 85 sec.

4. The cost of 8 pencils is Rs. 24. Find the cost of 5 pencils.

(A) Rs. 20

(B) Rs. 10

(C) Rs. 12

(D) Rs. 15

5. A table was bought for Rs. 1000 and sold for Rs. 900. Then the loss percent is

(A) 10%

(B) 5%

(C) 15%

(D) 12%

6. 104°F equals

(A) 50°C

(B) 55°C

(C) 40°C

(D) 45°C

7. 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)
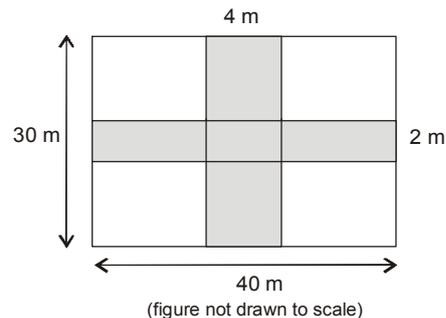
8. Which of the figures shows correct fraction for $\frac{1}{3}$?

(A) × × × ×(× ×)

(B) ÷ ÷ ÷ ÷(÷)

(C) ○ ○ ○(○ ○)

(D) ○ ○ ○ ○(○ ○ ○)

LOGICAL & ANALYTICAL REASONING

9. $5\frac{3}{4} = 5 + (\square + \square + \square)$

Here, $\square$ stands for

(A) $\frac{3}{4}$

(B) $\frac{1}{4}$

(C) 3

(D) 4

10. Find odd one out.

(A) Mars   (B) Jupiter   (C) Comet   (D) Earth

11. Which is the odd one out ?

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

12. Library is to book as book is to

(A) Page

(B) Copy

(C) Binding

(D) Cover

13. 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 & INFORMATION TECHNOLOGY

14. Windows 95/96 is a

(A) Software

(B) Hardware

(C) Operating system

(D) Input device

15. Find the odd term out.

(A) Scanner

(B) Pointing device

(C) OMR

(D) Printer

16. This is a non impact type of printer that uses heat to put characters on the paper. It uses paper with a special coating on it. It is basically used for printing output of ECG. Identify the printer we are talking about.

(A) Laser printer

(B) Inkjet printer

(C) Thermal printer

(D) Dot matrix printer

17. 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

18. MS–paint is

(A) Accounting software

(B) System software

(C) Application software

(D) Physical component

19. The small picture representing a program is a

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

20. 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

N S O

MENTAL ABILITY

1. 27,649 – 6,926 is best described as

(A) A little more than 11,000

(B) A little more than 20,000

(C) A little more than 25,000

(D) A little more than 30,000

2. A circle is drawn, with center point *O*.

The line segment from point A to point B, through the

center of the circle, is called –

(A) An arc

(B) A circumference

(C) A radius

(D) A diameter
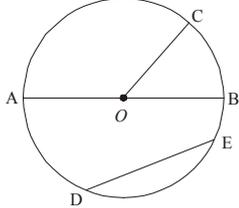
3. Which could be the measures of the angles of a right triangle ?

(A) 80°, 50°, 50°

(B) 36°, 90°, 54°

(C) 44°, 96°, 40°

(D) 110°, 50°, 20°

4. 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

5. An arrow makes an angle with the level ground, as shown in the picture. Which best names this angle ?

(A) Obtuse

(B) Right

(C) Straight

(D) Acute.
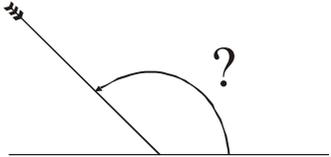
6. If A = 5, which number sentence is true ?

(A) A × 4 = 20

(B) A – 3 = 8

(C) 12 + A = 7

(D) 15 ÷ A = 10.

7. Which is true ?

(A) 2,934,106 < 2,873,014

(B) 2,163,489 < 2,089,634

(C) 2,874,365 < 2,897,056

(D) 2,457,831 < 2,359,678

SCIENCE

8. What is matter ?

(A) Anything that has temperature and takes up space

(B) Anything that has mass and volume

(C) Anything that has colour and takes up space

(D) All of these

9. The jellyfish is an invertebrate because it lacks —

(A) Eyes

(B) Blood

(C) Back bones

(D) Cells

10. Lime stone is a

(A) Sedimentary rock   (B) Igneous rock

(C) Hard rock   (D) Metamorphic rock

11. Oxygen, nitrogen, and carbon dioxide may be grouped together because at room temperature they are all —

(A) Colloids   (B) Solids

(C) Gases   (D) Liquids

12. The moon revolves around —

(A) Itself   (B) The solar system

(C) The Earth   (D) The star

13. Which of these is a process that allows plants to convert light energy into food energy?

(A) Photosynthesis   (B) Excretion

(C) Reproduction   (D) Digestion

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

(A) Grain   (B) Root

(C) Dispersal   (D) Seedling

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

(A) A balance   (B) A barometer

(C) A metric ruler   (D) Thermometer

16. Which of these can most easily attract magnets ?

(A) Wood   (B) Notebook

(C) Iron nails   (D) Eraser

17. The substance that makes plants green is known as –

(A) Water   (B) Chlorophyll

(C) Carbon dioxide   (D) Calcium

18. 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

19. Which of these probably causes the most air pollution?

(A) Cars   (B) Wind

(C) Rain   (D) Trees

20. People in very cold places live in

(A) Stilt house   (B) Wooden house

(C) Igloo   (D) House of mud

1. The table shows the number of toys a factory made in March and April. How many more toys did the factory make in March than in April

(A) 117,123   (B) 82,977

(C) 82,877   (D) 117,137

Toys Made at a Factory	
Month	Number Made
March	962,458
April	879,581

2. Harry had 500 coins in a jar. He sorted the coins into 25 different stack. Each stack had the same number of coins. How many coins were in each stack?

(A) 20   (B) 45   (C) 25   (D) 12

3. There are 914 students enrolled in Lakeview Elementary School. Frederich Elementary School has 276 fewer students enrolled. How many students are enrolled at Frederich Elementary School?

(A) 642   (B) 762   (C) 1,190   (D) 638

4. How is 4.026 written in words?

(A) Four and twenty-six thousandths   (B) Four and twenty-six hundredths

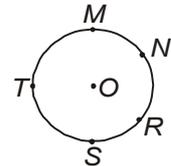(C) Four thousand, twenty-six   (D) Four hundred twenty-six

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

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

6. In the figure, point *O* is the center of the circle

Which two points appear to make a diameter when connected with a straight line?

(A) *M* and *S*   (B) *O* and *R*

(C) *N* and *S*   (D) *T* and *R*

7. Which unit could be used for measuring the amount of liquid needed to fill a small teacup?

(A) Gram   (B) Kg   (C) Meter   (D) Milliliter

8. Which of the following has exactly 6 vertices?

(A)   (B)   (C)   (D)
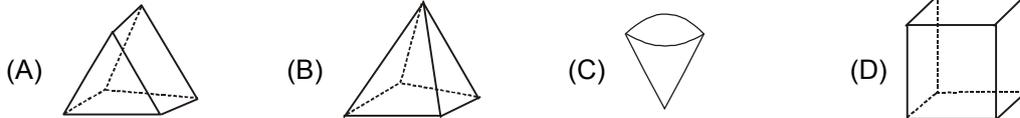
9. *S*   *T*   *W*   *X*   Which figure is quadrilateral?

(A) Figure *T*   (B) Figure *S*

(C) Figure *X*   (D) Figure *W*

10. Which figure has an area of 8 and a perimeter of 12? Each square block is of side 1 unit.

(A)   (B)

(C)   (D)
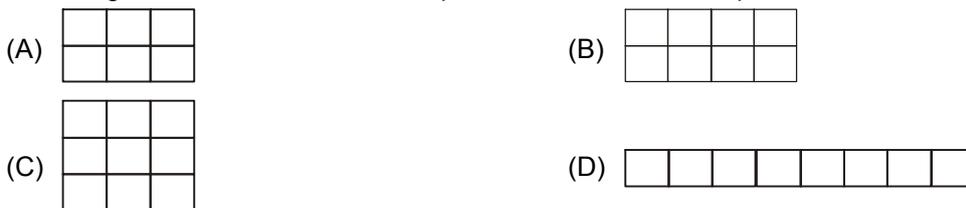
11. Tom left home at 7 : 15 a.m. to go to work. He returned home at 4 : 45 p.m. What is the total amount of time Tom was away from home?

(A) 7 hours, 30 minutes   (B) 9 hours, 30 minutes

(C) 3 hours, 30 minutes   (D) 8 hours, 30 minutes

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

$$51, 45, 39, 33, 27, 21 \ldots$$

Which could be the rule used to make the pattern?
(A) Divide by 7   (B) Divide by 6   (C) Subtract 7   (D) Subtract 6

13. 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) Amit 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 ?

14. An optometrist uses the symbol below as a tool during an eye exam.
Which figure would result when the symbol is flipped over the dotted line? **E**

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

15. 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?

$$72 \boxed{?} 19 =$$

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

16. 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.
How many different skirts could Shelley order choosing a length and a fabric pattern?

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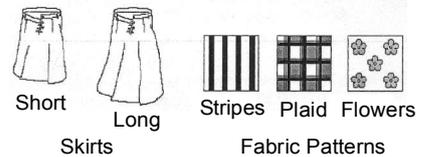
(A) 2   (B) 3   (C) 5   (D) 6

17. There are about 20 times as many species of ants as there are species of bats. Let b represents the number of species of bats. Which expression represents the number of species of ants?
(A) $b + 20$ (B) $b \div 20$ (C) $20 \times b$ (D) $20 \div b$

18. 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
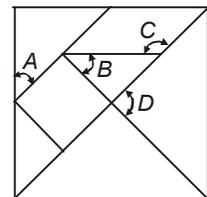
19. The picture below shows a spinner for an animal board game.
In which animal section is spinner least likely to land?

(A)

(B)

(C)

(D)
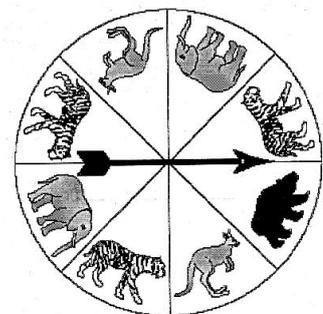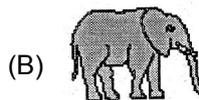
20. The following table shows the distance around four different planets.
Which planet's distance has the numeral 3 in the ten-thousands place?
(A) Jupiter   (B) Mars
(C) Mercury   (D) Neptune.

DISTANCE AROUND

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

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

National Cyber Olympiad

1. Ⓐ Ⓑ Ⓒ Ⓓ	5. Ⓐ Ⓑ Ⓒ Ⓓ	9. Ⓐ Ⓑ Ⓒ Ⓓ	13. Ⓐ Ⓑ Ⓒ Ⓓ	17. Ⓐ Ⓑ Ⓒ Ⓓ
2. Ⓐ Ⓑ Ⓒ Ⓓ	6. Ⓐ Ⓑ Ⓒ Ⓓ	10. Ⓐ Ⓑ Ⓒ Ⓓ	14. Ⓐ Ⓑ Ⓒ Ⓓ	18. Ⓐ Ⓑ Ⓒ Ⓓ
3. Ⓐ Ⓑ Ⓒ Ⓓ	7. Ⓐ Ⓑ Ⓒ Ⓓ	11. Ⓐ Ⓑ Ⓒ Ⓓ	15. Ⓐ Ⓑ Ⓒ Ⓓ	19. Ⓐ Ⓑ Ⓒ Ⓓ
4. Ⓐ Ⓑ Ⓒ Ⓓ	8. Ⓐ Ⓑ Ⓒ Ⓓ	12. Ⓐ Ⓑ Ⓒ Ⓓ	16. Ⓐ Ⓑ Ⓒ Ⓓ	20. Ⓐ Ⓑ Ⓒ Ⓓ

National Science Olympiad

1. Ⓐ Ⓑ Ⓒ Ⓓ	5. Ⓐ Ⓑ Ⓒ Ⓓ	9. Ⓐ Ⓑ Ⓒ Ⓓ	13. Ⓐ Ⓑ Ⓒ Ⓓ	17. Ⓐ Ⓑ Ⓒ Ⓓ
2. Ⓐ Ⓑ Ⓒ Ⓓ	6. Ⓐ Ⓑ Ⓒ Ⓓ	10. Ⓐ Ⓑ Ⓒ Ⓓ	14. Ⓐ Ⓑ Ⓒ Ⓓ	18. Ⓐ Ⓑ Ⓒ Ⓓ
3. Ⓐ Ⓑ Ⓒ Ⓓ	7. Ⓐ Ⓑ Ⓒ Ⓓ	11. Ⓐ Ⓑ Ⓒ Ⓓ	15. Ⓐ Ⓑ Ⓒ Ⓓ	19. Ⓐ Ⓑ Ⓒ Ⓓ
4. Ⓐ Ⓑ Ⓒ Ⓓ	8. Ⓐ Ⓑ Ⓒ Ⓓ	12. Ⓐ Ⓑ Ⓒ Ⓓ	16. Ⓐ Ⓑ Ⓒ Ⓓ	20. Ⓐ Ⓑ Ⓒ Ⓓ

International Mathematics Olympiad

1. Ⓐ Ⓑ Ⓒ Ⓓ	5. Ⓐ Ⓑ Ⓒ Ⓓ	9. Ⓐ Ⓑ Ⓒ Ⓓ	13. Ⓐ Ⓑ Ⓒ Ⓓ	17. Ⓐ Ⓑ Ⓒ Ⓓ
2. Ⓐ Ⓑ Ⓒ Ⓓ	6. Ⓐ Ⓑ Ⓒ Ⓓ	10. Ⓐ Ⓑ Ⓒ Ⓓ	14. Ⓐ Ⓑ Ⓒ Ⓓ	18. Ⓐ Ⓑ Ⓒ Ⓓ
3. Ⓐ Ⓑ Ⓒ Ⓓ	7. Ⓐ Ⓑ Ⓒ Ⓓ	11. Ⓐ Ⓑ Ⓒ Ⓓ	15. Ⓐ Ⓑ Ⓒ Ⓓ	19. Ⓐ Ⓑ Ⓒ Ⓓ
4. Ⓐ Ⓑ Ⓒ Ⓓ	8. Ⓐ Ⓑ Ⓒ Ⓓ	12. Ⓐ Ⓑ Ⓒ Ⓓ	16. Ⓐ Ⓑ Ⓒ Ⓓ	20. Ⓐ Ⓑ Ⓒ Ⓓ

ANSWERS

National Cyber Olympiad

| 1. (B) | 2. (A) | 3. (D) | 4. (D) | 5. (A) | 6. (C) | 7. (B) | 8. (A) | 9. (B) | 10. (C) |
| 11. (D) | 12. (A) | 13. (D) | 14. (C) | 15. (D) | 16. (C) | 17. (D) | 18. (C) | 19. (A) | 20. (D) |

National Science Olympiad

| 1. (B) | 2. (D) | 3. (B) | 4. (B) | 5. (A) | 6. (A) | 7. (C) | 8. (B) | 9. (C) | 10. (A) |
| 11. (C) | 12. (C) | 13. (A) | 14. (D) | 15. (A) | 16. (C) | 17. (B) | 18. (C) | 19. (A) | 20. (C) |

International Mathematics Olympiad

| 1. (C) | 2. (A) | 3. (D) | 4. (A) | 5. (C) | 6. (A) | 7. (D) | 8. (A) | 9. (C) | 10. (B) |
| 11. (B) | 12. (D) | 13. (B) | 14. (A) | 15. (D) | 16. (D) | 17. (C) | 18. (C) | 19. (A) | 20. (D) |