CLASS

6

SAMPLE PAPER

SCIENCE • OLYMPIAD • FOUNDATION

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) : Roman numerals, Numbers and numeration, Prime and composite numbers, HCF and LCM, Addition and subtraction, Multiplication and division, Fractional numbers, Decimal fractions, Basic geometrical concepts, Angles, Triangles, Circles, Measurement of length, Mass and capacity time, Money, Profit and loss, Temperature, Area and perimeter, Volume, Pictorial representation of data, Integers, Factors and multiples, Ratio and proportion, Percentage.

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) : General information about computer, Parts of computer, Input/ Output/ Processing units, Hardware/ Software, History and generation of computers, LOGO, MS-DOS, Paint, Notepad, Introduction to basic, Flow charts, Multimedia, Internet and Introduction to networking.

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) : Motion and Measurement, Light, Electricity & Magnetism, Water, Sorting Materials into Groups, Separation of Substances, Changes Around Us, Living Organism: Food Health & Hygiene, Fibres to Fabrics, Life Processes.

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 operations, Indian and International System, Bodmas Rule, Factors and Multiples, divisibility tests, HCF and LCM, Natural and whole numbers, Integers and operations on integers, Fraction and Decimal Algebraic Expressions, Linear equations, Solving an Equation, Line, Line Segment and Ray, Angle, Triangle, Quadrilateral, Circles, Types of triangles, Types of quadrilaterals, Symmetry, Perimeter and Area, Frequency diagram, Pictograph, Bar Graphs.

National Cyber Olympiad

MENTAL ABILITY

1. The value of (–10) + 92 + 84 + (–15) is

(A) 150 (B) 152

(C) 161 (D) 151.

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2. L.C.M. of 24 and 40 is

(A) 120 (B) 12

(C) 8 (D) 16.

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3. The number that should replace the box, so that the following forms a proportion, is

12, 21, 8, ☐

(A) 14 (B) 16

(C) 18 (D) 20.

---

4. 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.

---

5. $\frac{1}{4}$ is equivalent to

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

---

6. 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%.

---

7. How many lines can be drawn to pass through two points simultaneously ?

(A) One (B) Two

(C) More than three (D) No line.

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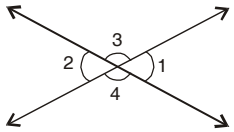
8. For the following figure, which of the following is false?



(A) $\angle 1 = \angle 2$ (B) $\angle 4 = \angle 3$

(C) $\angle 3 + \angle 1 = 180°$ (D) $\angle 1 = \angle 4$.

LOGICAL & ANALYTICAL REASONING

9. 11111 – 1111 + 111 – 11 + 1 is

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

---

10. 6 + 0 ÷ 6 × 2 + 1 equals

(A) 18 (B) 7 (C) 3 (D) 0.

---

11. If □ + 50 = △ and □ – 50 = ○,

what is the correct relation between △ and ○?

(A) 50 + ○ = △ (B) 50 – ○ = △

(C) 100 + ○ = △ (D) 100 – ○ = △.

---

12. Tina is building an open-ended (straight) fence by stringing wire between posts 25 metres apart. If the fence is 100 metres long, how many posts should she use?

(A) 2 (B) 3

(C) 4 (D) 5

---

13. 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 & INFORMATION TECHNOLOGY

14. The following steps results in

(1) Choose the insert ► picture ► clipart

(2) Select the picture

(3) Click insert clip

(A) Insertion of a picture to the file from clipart

(B) Insertion of the clipart from a file to another similar file

(C) Insertion of the picture from file to clipart file

(D) All of the above

---

15. 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.

---

16. PARAM is a

(A) Super computer (B) Mini computer

(C) Main computer (D) Micro computer.

---

17. Which of the following is a volatile memory ?

(A) ROM (B) RAM

(C) EPROM (D) PROM

---

18. 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 .

---

19. 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.

---

20. Cut, copy and paste are the part of which of the menu ?

(A) VIEW (B) FAVORITES

(C) FORMAT (D) EDIT.

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. You would need to know the perimeter of something if you were

(A) Buying a box big enough to hold a clock

(B) Buying enough tiles to cover the floor of a room

(C) Buying enough wood to make a frame for a picture

(D) Buying a tablecloth big enough to cover a table

.

4.

Which best describes the location of point X ?

(A) 58 (B) 40 (C) 44 (D) 54.

---

5. What is the area of a rectangle that measures 5 meters wide and 6 meters long ?

(A) 11 m^2 (B) 22 m^2 (C) 30 m^2 (D) 16 m^2.

---

6. 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.

---

7. Which can be solved by using the open sentence *K* + 10 = ?

(A) Mohan did 10 times as many push-ups as Kiran. If *K* is the number of push-ups Kiran did, how many push-ups did Mohan do ?

(B) Sharon did 10 more sit-ups than Kevin. If *K* is the number of sit-ups Kevin did, how many sit-ups did Sharon do ?

(C) John ran 10 fewer meters than Kiran. If *K* is the number of meters Kiran ran, how many meters did John run ?

(D) Kavita takes 10 minutes to run each lap around the gymnasium. If *K* is the number of laps Kavita ran, how long did she run ?

SCIENCE

8. Who wrote the book "The Origin of Species" ?

(A) Louis Pasteur (B) Sir Alexander Fleming

(C) Charles Darwin (D) Stephen Hawking .

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9. The tail of a comet always points towards the Sun.

(A) False (B) True

(C) Cannot say (D) Sometimes true, sometimes false

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10. Which of the following is necessary for burning (combustion) ?

(A) Oxygen (B) Petrol

(C) Carbon (D) Nitrogen.

---

11. The body system that gives you support and allows movement is the

(A) Skeletal system (B) Circulatory system

(C) Respiratory system (D) Excretory system .

---

12. 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.

---

13. The Sun is a

(A) Comet (B) Star

(C) Huge planet (D) Satellite.

---

14. The Earth is surrounded by an insulating blanket of gases which protects it from the light and heat of the Sun. This insulating layer is called the

(A) Hydrosphere (B) Lithosphere

(C) Atmosphere (D) Biosphere.

---

15. Which part of the body receives messages transmitted by nerve cells located throughout the body ?

(A) Heart (B) Lungs

(C) Brain (D) Liver.

---

16. Which of the following has an organic origin ?

(A) Sand (B) Bakelite

(C) Nylon (D) Coal.

---

17. 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

---

.**18.** What force pulls things toward the center of Earth ?

(A) Friction (B) Gravity

(C) Magnetism (D) Electricity.

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19. Who discovered the circulation of blood ?

(A) Edward Jenner (B) William Harvey

(C) Hargobind Khorana (D) Louis Pasteur.

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20. 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 ?

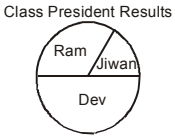
(A) Dry salt (B) Water with no salt

(C) The same salty water as before (D) Nothing.

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?

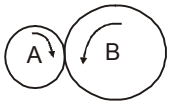


(A) 25 (B) 38
(C) 50 (D) 75

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 litres to chocolate litres in the New Guest house's weekly milk order?

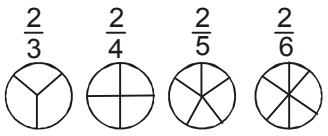
(A) 3 : 1 (B) 5 : 1 (C) 5 : 3 (D) 8 : 3

3. When wheel B turns 2 revolutions, wheel A turns 5 revolutions.
When wheel A turns 40 revolutions,
how many revolutions does wheel B turn?



(A) 4 (B) 16 (C) 80 (D) 100

4. Sita studied these pictures of fractions.
What pattern might she correctly notice in the fractions?



(A) Increasing the denominator increases the value of the fraction
(B) If the denominator stays the same and the numerator increases, the fraction names as smaller amount
(C) Increasing the denominator by 2 cuts the size of the fraction in half
(D) If the numerator stays the same and the denominator increases, the fraction names a smaller amount.

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

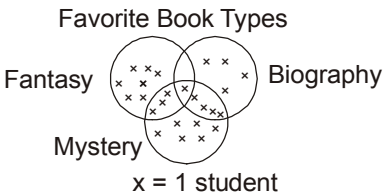
(A) 5 months (B) 7 months
(C) 9 months (D) 13 months

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

6. △△ = □△□, △□ = ○○, △ = 50
Using the diagram above, which of the following statements is true?

(A) ○ < △ (B) □ > ○ (C) △ < □ (D) △ < ○

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



(A) 3 (B) 5
(C) 7 (D) 8

MATHEMATICAL REASONING

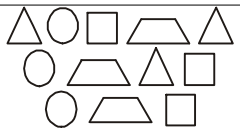
8. In Parul's garden, there are 25 rows of vegetables. She has five more rows of peppers than tomatoes and two fewer rows of cucumbers than tomatoes. If *y* represents the number of rows of tomatoes in

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) $(y + 5) + (y – 2) + y = 25$

9. What percent of these shapes are triangles?



(A) 0.25% (B) 3% (C) 12%
(D) 25%

10. Which of the following statements is true?

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

11. 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 lowest to highest?

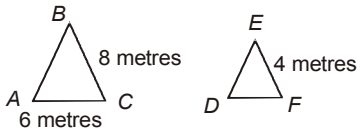
(A) –24°, –25°, –28°, –29°, –30° (B) –30°, –28°, –29°, –25°, –24°

(C) –30°, –29°, –28°, –25°, –24° (D) –30°, –29°, –28°, –24°, –25°

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

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

13. ΔABC is similar to ΔDEF. What is the length of $\overline{DF}$?



(A) 2 metres (B) 3 metres

(C) 5 metres (D) 10 metres

14. What is the value of the following expression? $3 + 3^2 (4 + 3)$

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

15. Jyoti got $1\frac{1}{2}$ times as many problems right as she did wrong on her science test. If she answered 20 questions incorrectly, how many questions were on the test?

(A) 10 (B) 30 (C) 50 (D) 70

16. Sheena began her book by reading five pages the first day, eight pages the second day, eleven pages the third day, 14 pages the fourth day, and so on. How many pages will she read on the twelfth day if she continues this pattern?

(A) 35 pages (B) 38 pages (C) 41 pages (D) 44 pages

17. 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

18. 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

19. 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

20. 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

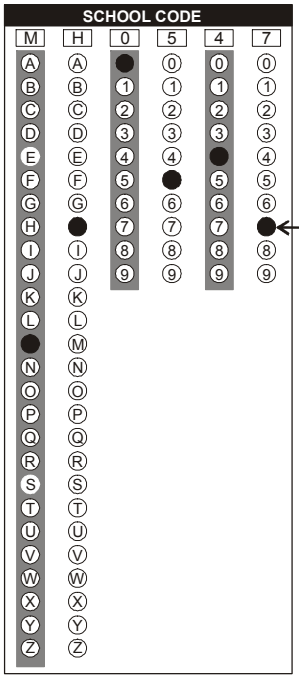
SAMPLE ANSWER SHEET

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 SHARMA, then you should write as follows :

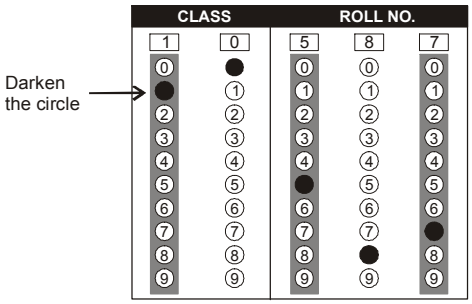
S	A	T	I	S	H		K	U	M	A	R		S	H	A	R	M	A							



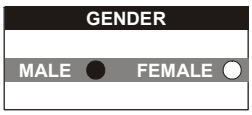
3. SCHOOL CODE
Write your school code i.e. if your school code is MH0547 darken as follows :

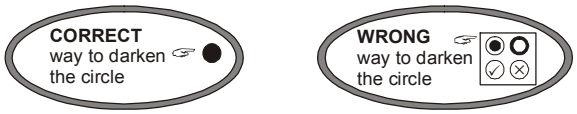
4. CLASS
If you are in Class 10, then you should darken as follows :

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



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





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

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

National Science Olympiad

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

International Mathematics Olympiad

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