



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) : Number and numeration, Addition, Subtraction, Multiplication, Division, Geometrical shapes, Measurement of time, Measurement of length, Mass and capacity, Money, Fractional numbers, Pictorial presentation of data, Roman numerals, Numbers up to one lakh, Multiples and factors.

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 (introduction), MS DOS/MS Paint.



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) : Plant and Animal Life, Human Body, Environment, Matter, General Science, Universe.



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

5 digit Numbers, Place value, Roman Numerals, Addition and Subtraction, Geometry : Square, Rectangle, Circle, Closed, Open Figure, Multiplication, Factors and Multiples, Fractions, Divisions, Measurement, Pictorial representation of data, Money, Time, Series and Pattern Formation of Numbers and Figures.



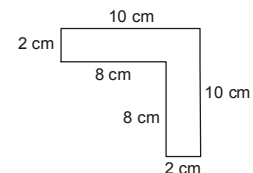
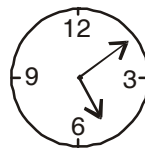
National Cyber Olympiad

MENTAL ABILITY

- The place value of 5 in 45327 is
(A) 5000 (B) 50 (C) 500 (D) 5327
- 5 is one of the factors of
(A) 36 (B) 30 (C) 42 (D) 21
- The fraction which represents the objects cancelled in the collection

\triangle	\triangle	\triangle	\triangle	is
\triangle	\triangle	\triangle	\triangle	
\triangle	\triangle	\triangle	\triangle	

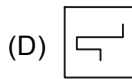
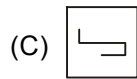
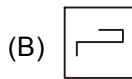
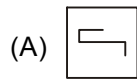
 (A) $\frac{5}{12}$ (B) $\frac{12}{5}$ (C) $\frac{1}{2}$ (D) $\frac{2}{3}$
- There were 3856 trees in a forest. In another forest there were 4795 trees. How many more trees were there in the second forest?
(A) 930 (B) 939 (C) 1689 (D) 1600
- The cost of a train ticket is Rs. 986. Find the cost of 15 tickets.
(A) Rs. 14790 (B) Rs. 14590 (C) Rs. 14950 (D) Rs. 14770
- 1 litre is
(A) 10 decilitres (B) 10 centilitres
(C) 10 millilitres (D) 100 decilitres.
- The time shown in the clock is
(A) 10 min. past 5
(B) 15 min. past 6
(C) 30 min. past 6
(D) 10 min. past 6.
- Perimeter of the figure given here is
(A) 40 cm (B) 50 cm
(C) 45 cm (D) 55 cm.



LOGICAL & ANALYTICAL REASONING

- A is 40 m South-West of B. C is 40 m South-East of B. C is in which direction of A ?
(A) South (B) West
(C) East (D) North-West
- If 'a' means '+' ; 'b' means '-' ; 'c' means '÷' and 'd' means '×' then the expression $16a\ 4b\ 4c\ 4d2 =$
(A) 10 (B) 7 (C) 18 (D) $2\frac{1}{2}$

11. There are four figures out of which three are same in some way while one is different from the rest. Find out the different figure.



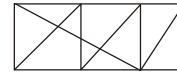
12. How many triangles are there in the following figure?

(A) 15

(B) 18

(C) 17

(D) 20.



13. Video : Cassette :: Computer : ?

(A) Reels

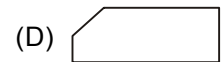
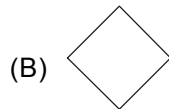
(B) Floppy

(C) Recordings

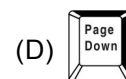
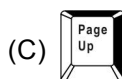
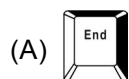
(D) Files

COMPUTERS & INFORMATION TECHNOLOGY

14. The symbol in the flowchart that represents an operation such as storage of data or any arithmetic operation is



15. This key is used to move cursor to the beginning of the line or the screen depending on the software used. Identify the key.



16. 1024 bytes equals

(A) 1 Kilo byte (KB)

(B) 1 Mega byte (MB)

(C) 1 Giga byte

(D) 1 Character.

17. Who among the following is known as father of computers ?

(A) Charles Babbage

(B) John Napier

(C) Blaise Pascal

(D) Lady Ada Augusta Lovelace.

18. While working with MS-Paint which option is used to add name to your drawing ?

(A) Text tool

(B) Pencil

(C) Edit

(D) Brush

19. Which command will move the LOGO cursor in forward direction ?

(A) F D

(B) B K

(C) L T

(D) R T

20. ? REMAINDER 10 3 will display result as

(A) 1

(B) 3

(C) 2

(D) 0



National Science Olympiad

MENTAL ABILITY

1. Hill 1 is 5,729 metre high. Hill 2 is 4,049 metre high. How much higher is Hill 1 than Hill 2 ?
(A) 1,720 m (B) 680 m
(C) 1,680 m (D) 1,239 m
-
2. On the first day of their vacation, the Bindal family drove 628 kilometre. On the second day, they drove 602 kilometre. How many kilometre did they drive in these two days ?
(A) 1,226 (B) 1,248
(C) 1,230 (D) 1,330
-

3. Namita drew a figure with 4 square corners. Which could be the figure she drew ?

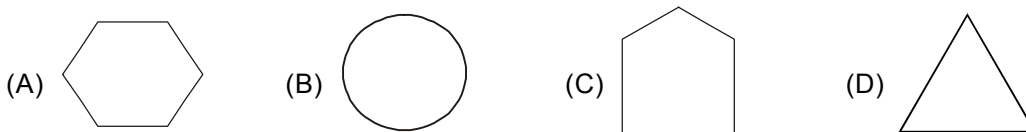


4. What would be the next 3 numbers in this pattern ?

9, 12, 15, 18, 21, 24, 27, __, __, __

- (A) 33, 36, 39 (B) 30, 33, 36
(C) 28, 29, 30 (D) 30, 32, 34
-

5. Which could be one of the faces of a cylinder ?



6. A triangle with all its sides unequal in length is called

- (A) Scalene (B) Isosceles (C) Equilateral (D) All of these
-

7. $2\frac{1}{4}$ as a decimal equals

- (A) 2.25 (B) 2.50 (C) 2.15 (D) 2.30
-

SCIENCE

8. When a moving object rubs against something, its motion slows down because of a force called
(A) Speed (B) Gravity
(C) Friction (D) Momentum
-
9. A leaflike part that protects a flower bud and is usually green in colour
(A) Stamen (B) Sepal
(C) Leaf (D) Petal
-

10. A barometer measures

- | | |
|-----------------|-------------------|
| (A) Temperature | (B) Air pressure |
| (C) Wind speed | (D) Precipitation |
-

11. The time it takes for Earth to rotate on its axis is one

- | | |
|------------|-----------|
| (A) Day | (B) Month |
| (C) Season | (D) Year |
-

12. When the layer of air that surrounds the Earth presses down, this is

- | | |
|------------------|-------------------|
| (A) Heat | (B) Temperature |
| (C) Air pressure | (D) Precipitation |
-

13. The energy an object gets from its motion is –

- | | |
|-----------------------|-----------------------|
| (A) Electrical energy | (B) Chemical energy |
| (C) Kinetic energy | (D) Potential energy. |
-

14. The pull or push is

- | | |
|-------------|--------------|
| (A) Gravity | (B) Friction |
| (C) Force | (D) Inertia |
-

15. The time it takes the earth to orbit the sun is one

- | | |
|-----------|------------|
| (A) Year | (B) Season |
| (C) Month | (D) Day |
-

16. A force that pulls two objects together is –

- | | |
|-------------------------|--------------|
| (A) Speed | (B) Friction |
| (C) Force of attraction | (D) Inertia |
-

17. Plants use sunlight to make sugar in the process of –

- | | |
|--------------------|-------------------|
| (A) Oxidation | (B) Reproduction |
| (C) Photosynthesis | (D) Fertilization |
-

18. Energy that results from chemical changes is –

- | | |
|--------------------|-----------------------|
| (A) Friction | (B) Mechanical energy |
| (C) Kinetic energy | (D) Chemical energy. |
-

19. Rubber, glass and plastic are good –

- | | |
|----------------|---------------------|
| (A) Conductors | (B) Generators |
| (C) Insulators | (D) Electromagnets. |
-

20. The tiny part of a seed that can grow into a plant is the –

- | | |
|------------|------------|
| (A) Pistil | (B) Spore |
| (C) Fruit | (D) Embryo |
-

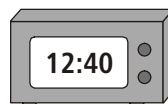


International Mathematics Olympiad

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1. There are eighty-six thousand four hundred seconds in a day. How else could this number be written?
(A) 80,064 (B) 80,640
(C) 86,400 (D) 86,404
-
2. Leena and her mother made a quilt. They used 56 squares and made 8 rows. How many squares are in each row?
(A) 6 (B) 7 (C) 8 (D) 9
-
3. 25 can be written as
(A) 1 ten 15 ones (B) 2 tens 5 ones
(C) 5 tens 2 ones (D) 3 tens 2 ones.
-
4. Jyoti walked 3 km each day. How many kilometre had she walked after 14 days?
(A) 42 (B) 32 (C) 14 (D) 11
-
5. Ram, Rahul, and Rohit shared a bag of marbles. The bag contained 272 marbles. How many marbles were left over after the friends shared them equally?
(A) 90 (B) 91 (C) 6 (D) 2
-
6. What number goes on the line in the pattern?
1, 2, 4, 8, 16, _____, 64
(A) 20 (B) 26 (C) 32 (D) 34
-
7. How many vertices does this pyramid have?
(A) 4 (B) 5
(C) 6 (D) 8
-
-
8. Start at 23.
Count by 10 two times.
Add 1.
What number are you at?
(A) 33 (B) 44 (C) 55 (D) 45
-
9. Which of these is the number 5,005,014?
(A) Five million, five hundred, fourteen
(B) Five million, five thousand, fourteen
(C) Five thousand, five hundred, fourteen
(D) Five billion, five million, fourteen.
-
10. Justin solved the problem below. Which expression could be used to check his answer?
- $$\begin{array}{r} 454 \\ 3 \overline{)1364} \end{array} : \text{Remainder} = 2$$
- (A) $(454 \times 3) + 2$ (B) $(454 \times 2) + 3$
(C) $(454 + 3) \times 2$ (D) $(454 + 2) \times 3$.
-
11. Which set of numbers is in order from greatest to least?
(A) 147, 163, 234, 275 (B) 275, 234, 163, 147
(C) 275, 163, 234, 147 (D) 163, 275, 234, 147.
-

12. Aunt Ruby's clock is shown here.

If her niece is going to pick her up in 30 minutes, what time will be shown on the clock?



- (A) 12 : 10 (B) 12 : 70 (C) 1 : 10 (D) 1 : 60

13. What is the best unit to use for measuring the amount of soda in a drink can?

- (A) Millilitre (B) Gallon (C) Tablespoon (D) Cup

14. What is the rule for this number pattern?

1, 1, 2, 6, 24, . . .

- (A) Add 0, then add 1, then add 2, and so on
(B) Multiply by 1, then multiply by 2, then multiply by 3, and so on
(C) Multiply by 1, then add 1
(D) Multiply by two, then subtract 1.

15. Danny and Julie have new sticker books. Danny will put 4 stickers in his book every day and Julie will put 6 stickers in her book every day.

How many stickers will Danny have when Julie has 30 in her book?

Day	Danny	Julie
1	4	6
2	8	12
3	12	18

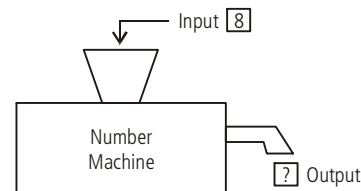
- (A) 20 (B) 24 (C) 28 (D) 30

16. When a number is put into the machine below, a different number comes out.

If 2 goes in, 6 comes out. If 4 goes in, 12 comes out. If 5 goes in, 15 comes out.

If 8 goes in, what number should come out?

- (A) 32 (B) 24
(C) 16 (D) 12



17. On Monday Sarah sold 54 cups of lemonade. On Tuesday she sold 71 cups of lemonade. How many more cups did she sell on Tuesday compared to Monday?

- (A) 15 (B) 16 (C) 17 (D) 18

18. Alexa needs 74 beads to make a necklace. She has 39 beads. How many more beads does she need?

- (A) 35 (B) 36 (C) 45 (D) 39

19. There are 3 rows of strawberry plants. Each row has 6 plants. How many strawberry plants in all?

- (A) 9 (B) 18 (C) 22 (D) 24

20. The chart shows the number of eggs produced on a farm in the first five months of the year.

Month	Number of Eggs
January	596
February	422
March	587
April	490
May	516

Which of the following statements is true ?

- (A) The number of eggs produced in March was less than in May.
(B) The number of eggs produced in April was less than in February.
(C) The number of eggs produced in January was less than in March.
(D) The number of eggs produced in May was less than in March.

SAMPLE ANSWER SHEET

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

S	A	C	H	I	T	A													
---	---	---	---	---	---	---	--	--	--	--	--	--	--	--	--	--	--	--	--

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													
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	--	--	--	--	--	--	--	--	--	--	--	--	--

SCHOOL CODE

M	H	0	5	4	7
A	A	●	0	0	0
B	B	1	1	1	1
C	C	2	2	2	2
D	D	3	3	3	3
E	E	4	4	4	4
F	F	5	●	5	5
G	G	6	6	6	6
H	H	7	7	7	●
I	I	8	8	8	8
J	J	9	9	9	9
K	K				
L	L				
M	M				
N	N				
O	O				
P	P				
Q	Q				
R	R				
S	S				
T	T				
U	U				
V	V				
W	W				
X	X				
Y	Y				
Z	Z				

3. SCHOOL CODE

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

Darken
the circle

6. GENDER

If you are a boy,
then darken
Male circle

GENDER	
MALE ●	FEMALE ○

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.	
1	0	5	8
0	●	0	0
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	●	5
6	6	6	6
7	7	7	7
8	8	8	●
9	9	9	9

Darken
the circle

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. (A) (B) ● (D)

Darken the circle

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

National Cyber Olympiad

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

National Science Olympiad

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|--------------------|--------------------|---------------------|---------------------|---------------------|
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International Mathematics Olympiad

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|--------------------|--------------------|---------------------|---------------------|---------------------|
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| 3. (A) (B) (C) (D) | 7. (A) (B) (C) (D) | 11. (A) (B) (C) (D) | 15. (A) (B) (C) (D) | 19. (A) (B) (C) (D) |
| 4. (A) (B) (C) (D) | 8. (A) (B) (C) (D) | 12. (A) (B) (C) (D) | 16. (A) (B) (C) (D) | 20. (A) (B) (C) (D) |

ANSWERS

National Cyber Olympiad

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

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

International Mathematics Olympiad

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