



**SOF INTERNATIONAL
MATHEMATICS OLYMPIAD**

SYLLABUS

Section – 1 : Verbal and Non-Verbal Reasoning.

Section – 2 : 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 – 3 : The Syllabus of this section will be based on the syllabus of Mathematical Reasoning.

Section – 4 : Higher Order Thinking Questions - Syllabus as per Section – 2.

Total Questions : 50

Time : 1 hr.

PATTERN & MARKING SCHEME

| Section | (1) Logical Reasoning | (2) Mathematical Reasoning | (3) Everyday Mathematics | (4) Achievers Section |
|------------------|-----------------------|----------------------------|--------------------------|-----------------------|
| No. of Questions | 15 | 20 | 10 | 5 |
| Marks per Ques. | 1 | 1 | 1 | 3 |

LOGICAL REASONING

1. Rearrange the following letters to make a single word and then choose the category to which it belongs.

F G O R

- (A) City (B) Animal
(C) Vegetable (D) Person

2. 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.

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

If Joy continues this savings pattern, how many months will Joy take to save ₹ 50 ?

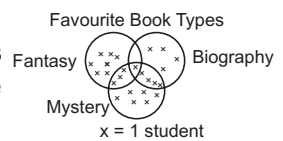
- (A) 5 months (B) 7 months
(C) 9 months (D) 13 months

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

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

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

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



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

MATHEMATICAL REASONING

5. 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) $(y + 5) + (y - 2) + y = 25$

6. Which of the following figures have at least two lines of symmetry?



- (A) Only P (B) Both P and Q
(C) Both Q and R (D) P, Q, R and S

7. Subtract 29.375 from the sum of 85.75 and 5.9.

- (A) 62.275 (B) 63.275
(C) 64.275 (D) 65.275

8. 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) $-24^\circ, -25^\circ, -28^\circ, -29^\circ, -30^\circ$
 (B) $-30^\circ, -28^\circ, -29^\circ, -25^\circ, -24^\circ$
 (C) $-30^\circ, -29^\circ, -28^\circ, -25^\circ, -24^\circ$
 (D) $-30^\circ, -29^\circ, -28^\circ, -24^\circ, -25^\circ$

9. What is the value of the given expression?

$$3 + 3 \times 3(4 + 3)$$

- (A) 38 (B) 42

- (C) 45 (D) 66

10. 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

11. 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

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

12. 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 there in each room?

13. A vessel has 5 litres 120 millilitres of mango shake. How many glasses each of 40 ml capacity, can be filled with it?

- (A) 122 (B) 130
 (C) 118 (D) 128

ACHIEVERS SECTION

14. Fill in the blanks:

- (i) The opposite sides of a parallelogram are P and Q .
 (ii) A quadrilateral having only one pair of opposite sides parallel is called a R .
 (iii) A parallelogram having all the sides equal is called a S .

- | | P | Q | R | S |
|-----|-------|--------------|-----------|---------|
| (A) | Equal | Parallel | Rectangle | Rhombus |
| (B) | Equal | Non-parallel | Trapezium | Kite |
| (C) | Equal | Parallel | Trapezium | Rhombus |
| (D) | Equal | Parallel | Trapezium | Kite |

15. Study the statements given below and choose the correct answer.

Statement 1 : Numbers having more than two factors are known as composite numbers.

Statement 2 : A number for which sum of all its factors is equal to twice the number is called a perfect number.

- (A) Statement-1 is true and statement-2 is false.
 (B) Statement-1 is false and statement-2 is true.
 (C) Both statements are true.
 (D) Both statements are false.

SPACE FOR ROUGH WORK

ANSWERS

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