CLASS
10
SAMPLE PAPER 2026-27

SCIENCE OLYMPIAD FOUNDATION

IMO
SOF INTERNATIONAL MATHEMATICS OLYMPIAD

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

SYLLABUS

Section – 1 : Verbal and Non-Verbal Reasoning.

Section – 2 : Real Numbers, Polynomials, Pair of Linear Equations in Two Variables, Quadratic Equations, Arithmetic Progressions, Triangles, Coordinate Geometry, Introduction to Trigonometry, Some Applications of Trigonometry, Circles, Areas Related to Circles, Surface Areas and Volumes, Statistics, Probability.

Section – 3 : The syllabus of this section will be based on the syllabus of Mathematical Reasoning and Quantitative Aptitude.

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

LOGICAL REASONING

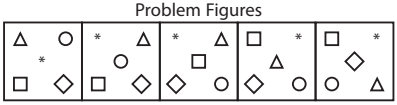
1. A square transparent sheet with a pattern and a dotted line on it is shown here. Select a figure from the options as to how the pattern would appear when the transparent sheet is folded along the dotted line.



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

2. Select a figure from the options which will continue the same series as established by the Problem Figures.

Problem Figures



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

3. In a row of boys, Nitish is 8^{th} from the right end and Prem is 17^{th} from the left end. If they interchange their positions, then Nitish becomes 10^{th} from the right end. How many boys are there in the row?

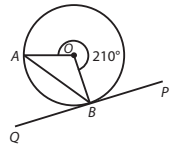
(A) 25 (B) 26 (C) 27 (D) 24

MATHEMATICAL REASONING

4. Let S_n denotes the sum of first n terms of an A.P. If $S_{2n} = 3S_n$, then the value of $\frac{S_{3n}}{S_n}$ is equal to

(A) 4 (B) 6 (C) 8 (D) 10

5. If AB is chord of a circle with centre O & PQ is a tangent to the circle at B with reflex $\angle AOB = 210°$, then the value of $\angle ABQ$ is



(A) 105° (B) 150°
(C) 210° (D) 75°

6. The angles of depression of two consecutive kilometre stones on the road on right and left of an aeroplane are 60° and 45°, respectively as observed from the aeroplane. Find the height of the aeroplane from the ground. (Use : $\sqrt{3} = 1.732$)
(A) 0.634 km (B) 1.682 km (C) 2.384 km (D) 0.236 km

EVERYDAY MATHEMATICS

7. Two trains leave a railway station at the same time. The first train travels due West and the second train due North. The first train travels 5 km/hr faster than the second train. If after two hours, they are 50 km apart, then find the average speed of each train.
(A) 20 km/hr, 15 km/hr (B) 25 km/hr, 30 km/hr
(C) 40 km/hr, 30 km/hr (D) 60 km/hr, 55 km/hr

8. A design on a floor is made up of triangular tiles. The sides of each triangle being 24 cm, 32 cm and 40 cm. Find the cost of polishing all 170 tiles on the floor at the rate of ₹ 1.50 per cm^2.
(A) ₹ 97920 (B) ₹ 65280 (C) ₹ 99480 (D) ₹ 89460

ACHIEVERS SECTION

9. Solve the following questions and select the correct option.
(i) If $\frac{\cos\alpha}{\cos\beta} = m$ and $\frac{\cos\alpha}{\sin\beta} = n$, then $(m^2 + n^2)\cos\alpha\cos\beta\cot\beta$ is equal to _____.
(ii) If cosec $A = 2$, then the value of $\frac{1}{\tan A} + \frac{1-\cos A}{\sin A}$ is _____.
(A) (i) : n^3; (ii) : $\sqrt{2}-1$ (B) (i) : n; (ii) : 2
(C) (i) : n^3; (ii) : 2 (D) (i) : n^2; (ii) : $\sqrt{3}+2$

10. Read the given statements carefully and select the correct option.
Statement-I : If the quadratic equation $(4 - k)x^2 + (2k + 4)x + (8k + 1) = 0$ is a perfect square, then the values of k are 0 and 3.
Statement-II : If α, β are the roots of the equation $25x^2 + 20x + 4 = 0$, then the equation whose roots are $\frac{1}{\alpha}$ and $\frac{1}{\beta}$ is $4x^2 + 20x + 25 = 0$.
(A) Both Statement-I and Statement-II are true.
(B) Both Statement-I and Statement-II are false.
(C) Statement-I is true but Statement-II is false.
(D) Statement-I is false but Statement-II is true.

ANSWER KEY

1. (A)	2. (C)	3. (B)	4. (B)	5. (D)	6. (A)	7. (A)	8. (A)	9. (C)	10. (A)