SOF
SCIENCE OLYMPIAD FOUNDATION

I M O
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

Scan the QR code for more details

SYLLABUS

Section – 1 : Verbal and Non-Verbal Reasoning.

Section – 2 : Number Systems, Polynomials, Coordinate Geometry, Linear Equations in Two Variables, Introduction to Euclid's Geometry, Lines and Angles, Triangles, Quadrilaterals, Circles, Heron's Formula, Surface Areas and Volumes, Statistics.

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. Pointing to a woman in a photograph, a man says, "She is the grandmother of the son of my daughter-in-law's mother-in-law." How is the woman related to the man?
(A) Mother   (B) Mother-in-law
(C) Sister   (D) Wife

2. Which of the following Venn diagrams best represents the relationship amongst, 'State, Country and Village'?

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

3. Find the odd one out.
(A) 18 : 108   (B) 42 : 132
(C) 22 : 112   (D) 26 : 156

MATHEMATICAL REASONING

4. Simplify : $\dfrac{2}{\sqrt{5}+\sqrt{3}} + \dfrac{1}{\sqrt{3}+\sqrt{2}} - \dfrac{3}{\sqrt{5}+\sqrt{2}}$
(A) 3   (B) 2
(C) 4   (D) 0

5. Two metallic right circular cones having their heights 4.1 cm and 4.3 cm respectively and the radii of their bases 2.1 cm each, have been melted together and recast into a sphere. Find the diameter of the sphere.

(A) 2.1 cm   (B) 3.5 cm
(C) 4.2 cm   (D) 6.2 cm

6. The sides of a triangular field are 90 m, 120 m and 150 m. Find the cost of levelling the field at the rate of ₹ 1.20 per square meter.
(A) ₹ 4760   (B) ₹ 5140
(C) ₹ 8540   (D) ₹ 6480

EVERYDAY MATHEMATICS

7. One-third of the boys and one-half of the girls of a college participated in a social work project. If the number of students who participated is 300 out of which 100 are boys, then what is the number of students in the college?
(A) 500   (B) 600
(C) 700   (D) 800

8. The population of a town is increased from 1,75,000 to 2,62,500 in a decade. The average percent increase of population per year is _____.
(A) 4.37%
(B) 5%
(C) 6%
(D) 50%

9. Fill in the blanks and select the correct option.

(P) Any point lying on *x*-axis is of the form ____.

(Q) The abscissa of a point on *y*-axis is ____.

(R) The point at which the two coordinate axes meet is called the ____.

(S) The perpendicular distance of the point (4, 5) from *x*-axis is ____.

(T) The perpendicular distance of the point (3, 7) from *y*-axis is ____.

	(P)	(Q)	(R)	(S)	(T)
(A)	$(0, y)$	1	origin	5	3
(B)	$(x, 0)$	0	origin	5	3
(C)	$(x, 0)$	0	origin	3	5
(D)	$(0, y)$	1	origin	3	5

10. In the given figure (not drawn to scale), *AEDF* is a cyclic quadrilateral. The values of *x* and *y* respectively are
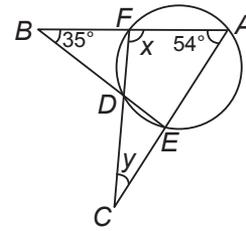
(A) 79°, 47°

(B) 89°, 37°

(C) 89°, 47°

(D) 79°, 37°

SPACE FOR ROUGH WORK