

**SOF INTERNATIONAL
MATHEMATICS OLYMPIAD
SYLLABUS**

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

Section – 1 : Verbal and Non-Verbal Reasoning.

Section – 2 : Rational Numbers, Squares and Square Roots, Cubes and Cube Roots, Exponents and Powers, Comparing Quantities, Algebraic Expressions and Identities, Linear Equations in One Variable, Understanding Quadrilaterals, Constructions, Mensuration, Visualising Solid Shapes, Data Handling, Direct and Inverse Variations, Factorisation, Introduction to Graphs, Playing with Numbers.

Section – 3 : Syllabus as per Section – 2.

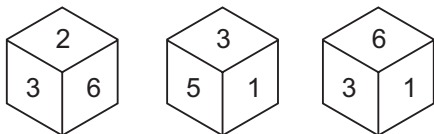
Section – 4 : Higher Order Thinking Questions - Syllabus as per Section – 2.

LOGICAL REASONING

1. Pointing to a man in a photograph, a woman says, "He is the only son of the only daughter-in-law of my only son's father." How is the man related to the woman?

- (A) Son
(B) Father
(C) Son-in-law
(D) Grandson

2. Three different positions of a dice are given below:



Which number is on the face opposite to 1?

- (A) 6 (B) 2
(C) 3 (D) 5

3. The digits of each of the following five numbers are written in reverse order and five new numbers are obtained :

513 726 492 865 149

Which of the following will be the third digit of the second highest new number?

- (A) 1 (B) 5
(C) 7 (D) 8

MATHEMATICAL REASONING

4. The area of a rectangle is given by $6x^2y + 4y^2x$ and the width of the rectangle is given by $2xy$. Find the perimeter of rectangle.

- (A) $6x + 8y + 2xy$ (B) $3x + 4y + 2xy$
(C) $8x + 6y + 4xy$ (D) $6x + 4y + 4xy$

- (A) $\frac{2}{5}$ (B) $\frac{3}{4}$
(C) $\frac{3}{5}$ (D) $\frac{3}{10}$

5. In a class of 100 students, 30% of the students offered English, 20% offered Hindi. If a student is selected at random, then what is the probability that he has offered English?

6. If $3^{x+y} = 81$ and $81^{x-y} = 3^8$, then find the values of x and y respectively.

- (A) 3, 1 (B) 1, 3
(C) -1, 3 (D) -1, -3

EVERYDAY MATHEMATICS

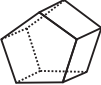


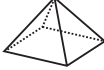
7. Sanket earns twice as much in the month of March as in each of the other months of the year. What part of his entire annual earnings was earned in March?

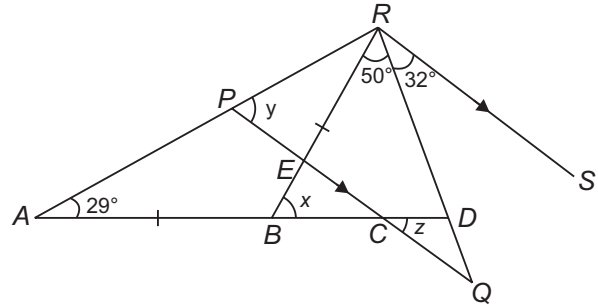
- (A) $\frac{1}{7}$ (B) $\frac{1}{6}$
(C) $\frac{2}{11}$ (D) $\frac{2}{13}$

8. The total of the ages of Jiya, Kunal and Sagar is 93 years. Ten years ago, the ratio of their ages was 2 : 3 : 4. What is the present age of Sagar?
- (A) 24 years
 (B) 32 years
 (C) 34 years
 (D) 38 years

ACHIEVERS SECTION

9. Select the INCORRECT match.

	Shape	Faces	Vertices	Edges
(A)		7	10	15
(B)		10	16	24
(C)		7	7	14
(D)		5	5	8



- | | x | y | z |
|-----|----------|----------|----------|
| (A) | 58° | 69° | 40° |
| (B) | 58° | 40° | 30° |
| (C) | 48° | 59° | 70° |
| (D) | 69° | 40° | 58° |

10. In the given figure (not drawn to scale), $BA = BR$ and PQ is parallel to RS . Find x , y and z .

SPACE FOR ROUGH WORK

ANSWERS

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