

# SMART SOCIETY INTERNATIONAL MATHEMATICS OLYMPIAD (SSIMO)



## Organized by

Department of Basic Science and Humanities  
INSTITUTE OF ENGINEERING & MANAGEMENT,  
IEM-UEM GROUP and SMART SOCIETY, USA

**TOTAL QUESTIONS: 40**

**DURATION: 1 HOUR**

## INSTRUCTIONS TO THE CANDIDATES:

1. The following question booklet is divided into 3 sections
  - a) Section A (Logical Reasoning) : 10 Questions
  - b) Section B (Mathematical reasoning) : 10 Questions
  - c) Section C (Achiever's level Mathematics): 20 Questions
2. Each question of section A carries 2 mark. Each question of section B carries 2 marks and each question of section C carries 3 marks.
3. All questions are compulsory. There is no negative marking. Use of calculator is not permitted.
4. There is only ONE correct answer. Choose only ONE option for an answer.
5. To mark your choice of answers by darkening the circles on the OMR sheet, use HB Pencil or Blue/Black ball point pen.
6. Rough work should be done in the blank space provided in booklet.
7. Return the OMR sheet to the invigilator at the end of exam.
8. Please fill in your personal details (in block letters) in the space provided below.

NAME: .....

SCHOOL NAME: .....

CONTACT DETAILS OF GUARDIAN: .....

## Section A

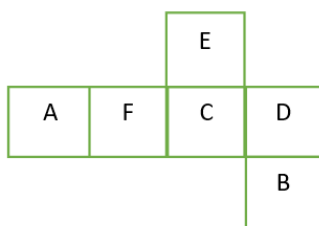
### Logical Reasoning

1. Which of the following options will complete the given series?

23F, 25H, 28K, 32O, \_\_\_\_\_, 43Z

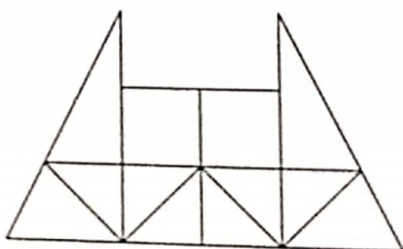
- a) 37S                      b) 36R  
c) 37T                      d) 36T

2. Which of the following alphabets lies on the face opposite to the face having alphabet E, when the given sheet is folded to form a cube?



- a) A                      b) D  
c) B                      d) F

3. Find the number of triangles formed in the given figure.



- a) 13                      b) 14  
c) 15                      d) More than 15

4. In the following series, how many 2's are there which are followed by 3?

4 6 2 5 7 8 3 2 3 6 4 5 3 8 2 7 2 3 8 9 2 3 6 2 5 7 8 2 4 3 1 4 2

- a) 2                      b) 3  
c) 5                      d) 6

5. If the 9th day of a month is 4 days earlier than Wednesday, what will be 20th day of the month?

- a) Monday              b) Thursday  
c) Wednesday        d) Tuesday

6. Ruby: Red :: Sapphire: ?

- a) White                  b) Green  
c) Silver                  d) Blue

7. Arrange the given words as they occur in a dictionary and select the correct option.

1. Cloud                  2. Cough  
3. Climb                  4. Catch  
5. Cutting

- a) 2, 4, 3, 1, 5              b) 2, 1, 3, 4, 5  
c) 4, 3, 1, 2, 5              d) 4, 1, 3, 2, 5

8. If 'L' stands for 'addition', 'M' stands for 'multiplication', 'N' stands for 'division' and 'P' stands for 'subtraction', then find the value of  $24 L 15 N 3 P 7 M 4$ .

- a) 6                          b) 1  
c) 12                        d) 5

9. A series is given with one term missing. Select the correct alternative from the given ones that will complete the series. AFG, EJK, INO, .....

- a) SMR                      b) MRS  
c) PQN                      d) NOP

10. In a certain code language, if SIKKIM is written as THLJLJL, then how will PUNJAB be written in the same code language?

- a) QTMIBA                  b) OVMKZC  
c) QTOIBA                  d) OMVZKC

## Section B

### Mathematical Reasoning

11.  $172+151-79 \square (-248)+121+309$   
a) <                      b) =  
c) >                      d) Can't be determined
12. A \_\_\_\_\_ is a number represent part of a whole.  
a) Fraction  
b) Improper Fraction  
c) Proper fraction  
d) None of these
13. Find the number of line of symmetry in a circle-  
a) 2                      b) 1  
c) 3                      d) Infinite
14. 7 divided by 0 is-  
a) 7                      b) 1  
c) 0                      d) Not defined
15. Three examples of twin primes are –  
a) (3,5), (5,9), (11,15)  
b) (3,6), (5,9), (3,7)  
c) (3,5), (5,7), (11,13)  
d) None of these
16. At 5 O'clock the hands of a clock make an obtuse angle of-  
a) 120 Degree      b) 150 Degree  
c) 135 Degree      d) 110 Degree
17. The statement "when an integer is added to itself, the sum is greater than the integer" is-  
a) Always true  
b) Never true  
c) True only when the integer is positive  
d) True for non-negative integers
18. A truck moves at a uniform speed of 68 km per hour. How much distance will it cover in 99 hours?  
a) 6732 km              b) 6932 km  
c) 6472 km              d) 6832 km
19. Rama's date of birth is 29th October. Express the date in Roman numeral.  
a) XXXI                  b) XXV  
c) XXX                  d) XXIX
20. How many 3-digit numbers can be formed by using the digits 1, 7 and 5.  
a) 7                      b) 9  
c) 6                      d) 8

## Section C

### Achiever's level Mathematics

21. In the addition shown, a digit, either the same or different, can be placed in each of the two boxes. What is the sum of the two missing digits?

$$\begin{array}{r} 8 \ 6 \ 3 \\ \square \ 9 \ 1 \\ + \ 7 \ \square \ 8 \\ \hline 2 \ 1 \ 8 \ 2 \end{array}$$

- a) 7                      b) 13  
c) 11                      d) 9
22. The HCF and LCM of two numbers are 84 and 21, respectively. If the ratio of the two numbers is 1:4, then the larger of the two numbers is:  
a) 12                      b) 48  
c) 84                      d) 108
23. The sum of three consecutive integers is 90. What is the largest of the three integers?  
a) 29                      b) 32  
c) 31                      d) 28

24. Read the given statements carefully and select the correct option

**Statement-I:**  $\frac{1}{4}$  of a revolution is a right angle.

**Statement-II:** A person is facing towards North. He turns clockwise to face towards South-West. So, he turned  $\frac{5}{8}$  of a revolution clockwise.

- a) Statement-I is true but Statement-II is false
- b) Statement-I is false but Statement-II is true
- c) Both Statement-I and Statement-II are true
- d) Both Statement-I and Statement-II are false.

25. Aruna had some cookies. She gave  $\frac{1}{6}$  of the cookies to her brother. Then she ate 18 cookies and gave 17 cookies to her mother. She then had  $\frac{1}{4}$  of her total cookies left.

- (i) How many cookies did she have at first?
- (ii) What fraction of total cookies she ate?

	(I)	(ii)
a)	60	$\frac{3}{10}$
b)	40	$\frac{3}{10}$
c)	60	$\frac{9}{20}$
d)	40	$\frac{9}{20}$

26. A train covers a distance of 330 km in 6 hours. Then

- (i) How long will it take to cover 605 km?
- (ii) How far it will travel in 7 hours 30 minutes?

	(I)	(ii)
a)	13 hours	412.5 km
b)	11 hours	412.5 km
c)	13 hours	408.5 km
d)	11 hours	408.5 km

27. Answer the following questions and select the correct option.

(i) A path (outside) of width 50 cm is made around a rectangular field of dimension 12 m and 8 m. Find the area of that path.

(ii) A wire of length 68 cm is bent into form of a square. Find the area of the square so formed.

	(I)	(ii)
a)	$21 \text{ m}^2$	$289 \text{ cm}^2$
b)	$26 \text{ m}^2$	$68 \text{ cm}^2$
c)	$17 \text{ m}^2$	$200 \text{ cm}^2$
d)	$21 \text{ m}^2$	$215 \text{ cm}^2$

28. In a quiz, there are 50 questions. If all questions are answered correctly, a student's score will be 100; if all questions are answered incorrectly, a student's score will be -50. Part way through this quiz Rani has a score of -5. What will her new score be, if she

- (i) Answers 3 of the next 7 questions correctly and 4 of them incorrectly?
- (ii) Answers 2 of the next 8 questions incorrectly and 6 of them correctly?

	(I)	(ii)
a)	1	5
b)	3	5
c)	-3	5
d)	-3	-7

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

- (i) A line segment has \_\_\_\_\_ end point(s).
- (ii) A bisector of an angle divides it into \_\_\_\_\_ angles.
- (iii) Number of set squares in a geometry box is \_\_\_\_\_.

	(I)	(II)	(III)
a)	2	2	2
b)	3	3	2
c)	3	2	3
d)	2	3	2

30. Match the following and select the correct option.

Column-I

(I)  $3(y+6y)-15=0$

(ii)  $9(2y+3)-5(3y-2)=43$

(iii)  $3\{(y+2)/2\}=8$

(iv)  $y/5=7/15$

Column-II

(P)  $y=10/3$

(Q)  $y=5/7$

(R)  $y=7/3$

(S)  $y=2$

- a) (i)-(Q), (ii)-(P), (iii)-(R), (iv)-(S)  
 b) (i)-(Q), (ii)-(S), (iii)-(P), (iv)-(R)  
 c) (i)-(S), (ii)-(P), (iii)-(R), (iv)-(Q)  
 d) (i)-(P), (ii)-(R), (iii)-(Q), (iv)-(S)

31. Study the figures given in the Column-I with their lines of symmetry given in Column-II

Column-I

a) Equilateral triangle

b) Square

c) Parallelogram

d) Rhombus

Column-II

(1) 0

(2) 3

(3) 2

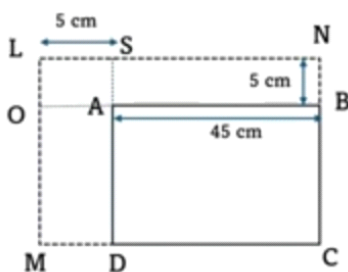
(4) 4

- a) (P)-(2), (Q)-(4), (R)-(3), (S)-(1)  
 b) (P)-(2), (Q)-(4), (R)-(1), (S)-(3)  
 c) (P)-(2), (Q)-(1), (R)-(4), (S)-(3)  
 d) (P)-(4), (Q)-(2), (R)-(1), (S)-(3)

32. ABCD is a rectangle. When the length and breadth of the rectangle are increased gets enlarged to LNCM. If the length of rectangle ABCD is thrice its breadth, then find the

(i) Sum of perimeter of rectangle ABCD and SNBA

(ii) Area of rectangle LNCM



(I)

(ii)

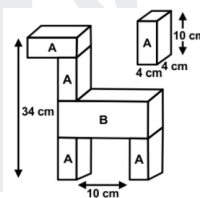
- a) 225 cm       $840 \text{ cm}^2$   
 b) 220 cm       $900 \text{ cm}^2$   
 c) 220 cm       $1000 \text{ cm}^2$   
 d) 235 cm       $750 \text{ cm}^2$

33. Find m and n in the given ratios:

$48 : 384 = m : 784 = 53 : n$

- a)  $m=35, n=88$   
 b)  $m=98, n=424$   
 c)  $m=26, n=153$   
 d)  $m=82, n=584$

34. A few blocks of wood are used to make the shape of a giraffe as shown below. What is the volume of wood used to make the giraffe?



- a)  $1360 \text{ cm}^3$       b)  $1400 \text{ cm}^3$   
 c)  $640 \text{ cm}^3$       d)  $1260 \text{ cm}^3$

35. The month of April, 2000, had five Sundays. Three of them fall on even numbered days. The eighth day of this month is a

- a) Saturday      b) Sunday  
 c) Monday      d) Tuesday

36. What is the remainder when 45678 is divided by 11?

- a) 5      b) 2  
 c) 9      d) 6

37. The sum of all prime numbers between 20 and 50 is:

- a) 220      b) 198  
 c) 251      d) 101

38. If '+' means '÷', '×' means '-', '-' means '×' and '÷' means '+' then what is the value of the below statement?
- a) 18                      b) 17  
c) 16                      d) 12
39. Expanded form of  $M+DC+LXX+IX=?$
- a) 1015                      b) 1679  
c) 1999                      d) 2000
40. Two trains start from the same station and move in opposite directions. One travels at 50 km/h, and the other at 60 km/h. After 4 hours, how far apart are they?
- a) 450 km                      b) 440 km  
c) 420 km                      d) 360 km



