

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: 35

DURATION: 1 HOUR

INSTRUCTIONS TO THE CANDIDATES:

1. The following question paper 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 the space provided below.

NAME:

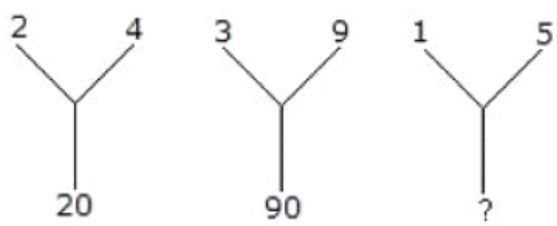
SCHOOL NAME:

CONTACT DETAILS OF GUARDIAN:

SECTION A

LOGICAL REASONING

1. Which of the following is true for the number line?
- a) Numbers on the left are greater
b) Numbers on the right are smaller
c) Numbers increase as you move to the right
d) None of these
2. Mary is taller than Tina, and Tina is shorter than John. Who is the shortest?
- a) Mary b) Tina
c) John d) cannot be determined
3. A clock shows the time as 10:15. If the clock runs 30 minutes late, what will be the correct time when the clock shows 11:45?
- a) 12:15 b) 12:45
c) 11:15 d) 2:00
4. If $Z = 52$ and $ACT = 48$ then $BAT = ?$
- a) 41 b) 46
c) 48 d) 44
5. Find the ‘?’.



- a) 39 b) 42
c) 26 d) 46

6. Complete the given figure by finding the number.

3	6	8
5	8	4
4	7	?

- a) 5 b) 6
c) 7 d) 8
7. Three years ago, Sita’s age was half of what it will be in 5 years. How old is Sita now?
- a) 8 b) 11
c) 12 d) 14
8. If 5 workers can complete a task in 12 days, how long will it take for 3 workers to complete the same task (assuming they work at the same rate)?
- a) 15 days b) 20 days
c) 24 days d) 30 days
9. A tank is $\frac{3}{4}$ full of water. If 12 liters of water are added, the tank becomes completely full. What is the capacity of the tank?
- a) 36 liters b) 60 liters
c) 48 liters d) 64 liters
10. The sum of three consecutive even numbers is 48. What is the smallest of these numbers?
- a) 14 b) 12
c) 16 d) 18

SECTION B

MATHEMATICS

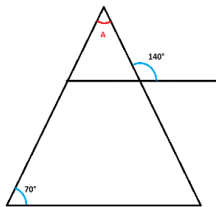
11. Simplify $2 \times (9/7 + 5/7)$:

- a) $26/7$ b) $24/7$
c) 4 d) 2

12. Which of the following is a terminating decimal?

- a) $1/3$ b) $1/2$
c) $1/7$ d) $1/9$

13. Find the value of A in the given diagram:



- a) 50° b) 60°
c) 70° d) 80°

14. If a dress costs ₹600 after a 20% discount, what was its original price?

- a) ₹700 b) ₹750
c) ₹800 d) ₹850

15. If a person earns ₹5000 and spends ₹4000, the ratio of savings to earnings is:

- a) 1:5 b) 1:6
c) 1:4 d) 1:2

16. In $\triangle ABC$ and $\triangle PQR$, if $AB=PQ$, $BC=QR$, and $\angle B=\angle Q$, then the triangles are congruent by:

- a) SSS b) SAS
c) ASA d) RHS

17. If two angles are supplementary, they add up to:

- a) 90° b) 120°

c) 180°

d) 360°

18. Solve for

a) 8 $x: \frac{1}{2}(2x - 3) - \frac{1}{6}(2x - 5) = 6$
c) 12 d) 15

19. $x = \frac{-4}{2} + \left(-\frac{1}{4}\right) + \left(-\frac{12}{5}\right) + \frac{2}{3} - 4 + 1$
then simplest form of X is

- a) -6.99 b) -5.98
c) -59.8 d) -6.89

20. The number of ice-cream cones that can be made from a 4.5kg box of ice-cream, if each ice-cream cone contains 225 g of ice-cream is

- a) 10 b) 12
c) 15 d) 20

SECTION C

ACHIEVER'S LEVEL

21. Solve the expression:

$$\frac{2^2 \times 27 \times 64}{9 \times 4^4}$$

- a) 2 b) 8
c) 6 d) 3

22. Find the value of m, if $\left(\frac{1}{5}\right)^3 \times \left(\frac{1}{5}\right)^7 = \left(\frac{1}{5}\right)^{2m}$

- a) 4 b) 5
c) 6 d) 7

23. How much smaller is

$$2x^2 - 2x + 5 \text{ than } 7 + 5x^2 + 3x ?$$

- a) $3x^2 + 5x + 2$ b) $3x^2 + 5x - 2$
c) $3x^2 - 5x - 2$ d) $3x^2 - 5x + 2$

24. Think of a number, take away 6 from $\frac{7}{2}$ of the number. The result is 22, find the number.

- a) 6 b) 7
c) 8 d) 9

25. A is 12 years older than B. After 4 years, A's age will be equal to twice the age of B. find their present age.

- a) 8, 20 b) 6, 18
c) 4, 16 d) 10, 22

26. In a row of boys, John is 7th from the left, and Peter is 9th from the right. If there are 17 boys in the row, how many boys are between John and Peter?

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

27. What number should come next in the series?

0, 1, 1, 2, 3, 5, 8, 13, __

- a) 20 b) 21

c) 22

d) 19

28. A kite is flying with its string tied to the ground. The string is 15 meters long, and the kite is 9 meters above the ground. How far is the kite horizontally from the point where the string is tied?

- a) 12 meters b) 13 meters
c) 10 meters d) 11 meters

29. How many distinct prime factors does the number 2520 have?

- a) 3 b) 5
c) 4 d) 6

30. 25 packets of 12 pencils each costs Rs.750. Find the cost of 32 packets of 8 pencils each.

- a) 740 b) 840
c) 540 d) 640

31. A and B can complete a piece of work together in 12 days. A alone can complete the same work in 20 days. How long will it take B to complete the work alone?

- a) 25 days b) 30 days
c) 40 days d) 45 days

32. A wire is in the shape of a rectangle. Its length is 50cm. and breadth is 26 cm. If the same wire is reset in the shape of the square, what will be the measure of each side?

- a) 36 b) 37
c) 38 d) 39

33. A garden, 80 m long and 65 m broad, is surrounded by a path outside it. Find the area of the path.

- a) 1650 sq. m b) 1250 sq. m
c) 1750 sq. m d) 1550 sq. m

34. A shopkeeper bought 24 chairs at the rate of Rs.450 per chair; He sold 16 of them at the rate of Rs.600 per chair and the remaining at the rate of Rs.400 per chair. Find the gain or loss percent.
- a) $17\frac{14}{27}\%$ b) $18\frac{13}{27}\%$
- c) $18\frac{14}{27}\%$ d) $16\frac{13}{27}\%$
35. If $x:y = 3:5$, find the value of $(3x+2y):(2x+3y)$
- a) 19:20 b) 19:21
- c) 21:20 d) 20:21
36. How many days will 1300 men take to dig a trench, if 625 men can do the same in 52 days?
- a) 25 days b) 35 days
- c) 20 days d) 30 days
37. A car can finish a certain journey in 12 hours at a speed of 50 km/hour. By how much should its speed be increased so that it may take only 8 hours to cover the same distance?
- a) 20 km/hr. b) 30 km/hr.
- c) 15 km/hr. d) 25 km/hr.
38. A tree is broken at a height of 5 cm. from the ground and its top touches the ground at a distance of 12 cm from the base of the tree. Then the original height of the tree is
- a) 14 cm b) 15 cm
- c) 13 cm d) 18 cm.
39. A circular ground has radius 56 m. A 7 meter wide road runs outside around it. The area of the road will be
- a) 2618 sq. m b) 2620 sq. m
- c) 2625 sq. m d) 2615 sq. m
40. The radius of a circular wheel is 3.5 m. How many revolutions will it make in travelling 22 km?
- a) 100 b) 1000
- c) 1500 d) 200

