SCIENCE OLYMPIAD FOUNDATION

IMO

SOF INTERNATIONAL MATHEMATICS OLYMPIAD 2025-26

CLASS **8**

QUESTION PAPER SET **A**

Total Questions : 50 Time : 1 hr.

Guidelines for the Candidate

1. You will get additional ten minutes to fill up information about yourself on the OMR Sheet, before the start of the exam.
2. Write your **Name, School Code, Class, Section, Roll No.** and **Mobile Number** clearly on the **OMR Sheet** and do not forget to sign it. We will share your marks / result and other information related to SOF exams on your mobile number.
3. The Question Paper comprises four sections:

   Logical Reasoning (15 Questions), **Mathematical Reasoning** (20 Questions), **Everyday Mathematics** (10 Questions) and **Achievers Section** (5 Questions)

   Each question in Achievers Section carries 3 marks, whereas all other questions carry 1 mark each.
4. All questions are compulsory. There is no negative marking. Use of calculator is not permitted.
5. There is only ONE correct answer. Choose only ONE option for an answer.
6. To mark your choice of answers by darkening the circles on the OMR Sheet, use **HB Pencil** or **Blue / Black ball point pen** only. E.g.

   Q. 16: Navya purchased a hand bag for ₹ 345.50, a pair of shoes for ₹ 480.25 and a cap for ₹ 75.50. How much money did she spend in all?

   A. ₹ 901.25 B. ₹ 785.50 C. ₹ 895.75 D. ₹ 920.25

   As the correct answer is option A, you must darken the circle corresponding to option A on the OMR Sheet. 16. ● Ⓑ Ⓒ Ⓓ
7. Rough work should be done in the blank space provided in the booklet.
8. Return the OMR Sheet to the invigilator at the end of the exam.
9. Please fill in your personal details in the space provided before attempting the paper.

Name:.....

SOF Olympiad Roll No.:.....

Contact No.:.....

DO NOT OPEN THIS BOOKLET UNTIL ASKED TO DO SO

1. Find the missing term in the given number series.

4, 9, 25, 49, 121, 169, ?

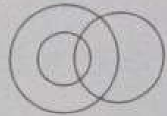
A. 225
B. 361
C. 289
D. 441

2. Select the correct mirror image of the given combination of letters and symbols, if the mirror is placed vertically to the right.

PV₹Λ∠LΣLOG₹@M

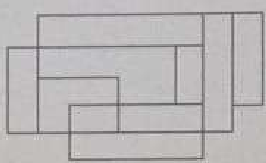
A. ЬΛ⩽V⊲ΓΣΓOC⩽@W
B. M@⩽DO.IƸ.I⊵Λ⩽Vq
C. W@⩾DOꟻƸꟻ∠V⩾Λd
D. M@⩽DOVƸ.IΛ⊵⩽.Iq

3. Which of the following group of elements represents the given Venn diagram?



A. Earth, Mumbai, Moon
B. Dollar, Currencies, Euro
C. Deserts, Rajasthan, Asia
D. Cows, Wild animals, Rabbits

4. Find the number of rectangles formed in the given figure.

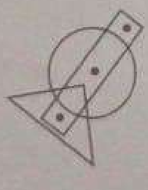


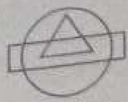
A. 12
B. 13
C. 14
D. More than 14

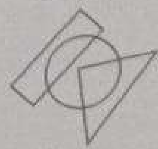
5. If in a certain code language, 'you are fun' is written as 'pa ga al', 'are these balloons' is written as 'ha ka al' and 'fun and you' is written as 'mo ga pa', then how 'fun' is written in the same code language?

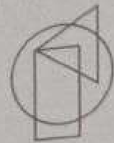
A. pa
B. mo
C. ga
D. Either pa or ga

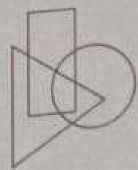
6. Which of the following options satisfies the same conditions of placement of the dots as in the given figure?



A. 

B. 

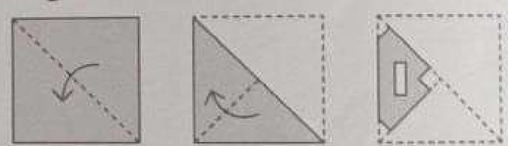
C. 

D. 

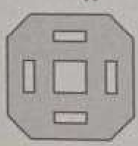
7. Seven friends J, K, L, M, N, O and P are sitting around a circular table facing the centre, but not necessarily in the same order. J is immediate neighbour of both O and N. N sits fourth to the right of L. The number of persons sitting between P and J is same as that of O and K, if we count in clockwise direction. M is not an immediate neighbour of L. Who among the following sits immediate to the left of M?

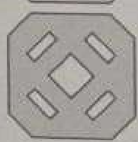
A. K
B. P
C. N
D. Data inadequate

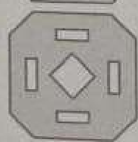
8. The given question consists of a set of three figures X, Y and Z showing a sequence of folding of a piece of paper. Fig. Z shows the manner in which the folded paper has been cut. Select a figure from the options which would most closely resembles the unfolded form of Fig. Z.



X Y Z

A. 

B. 

C. 

D. 

9. A is the father of X and B is the mother of Y. Sister of X and Z is Y. Which of the following statements is definitely not true?

A. B is the mother of Z
B. X is the sister of Z.
C. Y is the son of A.
D. B has one daughter.

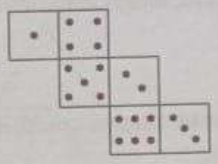
10. If '@' means '×', '#' means '–', '%' means '+' and '©' means '÷', then what is the value of 45 % 975 © 75 % 13 @ 19 # 17?

A. 522
B. 288
C. 290
D. None of these

11. How many degrees will the second hand rotates when the time changes from 2:27:07 p.m. to 2:27:15 p.m.?

A. 415°
B. 340°
C. 57°
D. 48°

12. Select a box from the options that is similar to the box formed when the given net is folded to form a cube.



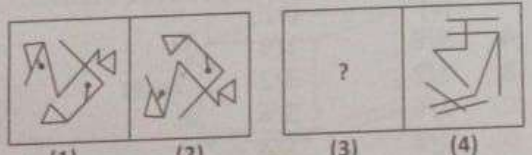
A. 

B. 

C. 

D. 

13. There is a certain relationship between figures (1) and (2). Establish the similar relationship between figures (3) and (4) by selecting a suitable figure from the options which will replace the (?) in figure (3).



(1) (2) (3) (4)

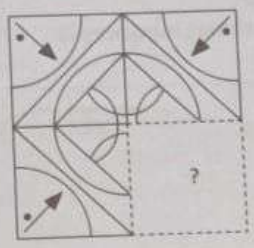
A. 

B. 

C. 

D. 

14. Select a figure from the options which will complete the pattern in the given figure.



A. 

B. 

C. 

D. 

15. Point E is 40 m North-West of point A and point B is 40 m South of point A. Point F is 39 m West of point D and 40 m South of point B. How far is point D with respect to point A?

A. 87 m
B. 40 m
C. 89 m
D. Data inadequate

16. Which of the following is a four digit perfect square number whose first two digits and last two digits taken separately are also perfect squares?

A. 6481
B. 3616
C. 1681
D. 6436

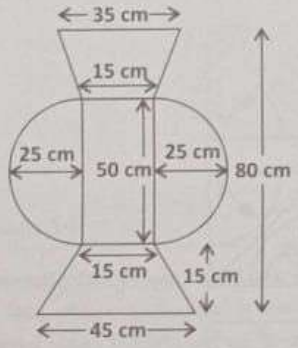
17. The value of $(p-q)(p+q)(p^2+q^2)[(p^2+q^2)^2-2p^2q^2]$ is _____.

A. p^6+q^6
B. p^6-q^6
C. p^8-q^8
D. p^8+q^8

18. The product of two rational numbers is $\frac{-12}{25}$. If one of them is $\frac{3}{5}$, then the absolute value of the difference of two rational numbers is

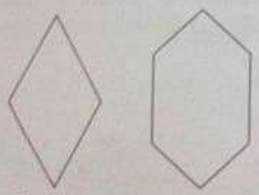
A. $\frac{7}{5}$
B. $\frac{1}{5}$
C. $\frac{2}{5}$
D. $\frac{7}{3}$

19. Find the area of the given figure (not drawn to scale).



A. 3339.29 cm^2
B. 3539.29 cm^2
C. 4506.75 cm^2
D. 5967.47 cm^2

20. The sum of the order of rotational symmetry of Figure-P and Figure-Q is _____.



A. 0
B. 3
C. 2
D. 4

21. The average of 6 numbers is 8. A seventh number is added and the new average is 9. If the sum of the first three numbers is twice the sum of the last four numbers, then the average of the first three numbers is _____.

A. 14
B. 42
C. 15
D. 63

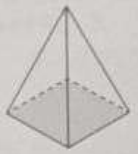
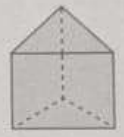
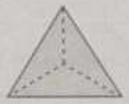
22. Select the INCORRECT match.

	Toys	S.P.	Discount rate	Marked price
A.	Doll House	₹ 9000	10%	₹ 10000
B.	Kitchen set	₹ 16000	20%	₹ 20000
C.	Hockey set	₹ 10200	15%	₹ 14000
D.	Tool set	₹ 900	40%	₹ 1500

23. A solid object when seen from one side, looks like this.

The same solid, when viewed from top, looks like this.

Which of these shapes could it be?

A. 
B. 
C. 
D. 

24. A die is rolled once. Find the probability that the number on the uppermost face will be

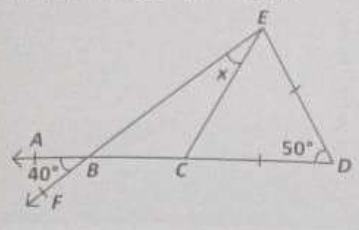
(a) 5 (b) not 5

	(a)	(b)
A.	5/6	1/6
B.	1/2	3/2
C.	1/6	5/6
D.	3/4	1/4

25. In the 4-digit number 6x5y, x is the largest one-digit perfect cube and y is the greatest one-digit number. Find the cube root of the number.

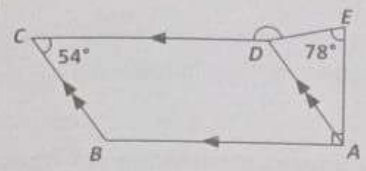
A. 18
B. 19
C. 17
D. 21

26. In the figure (not drawn to scale) given below, $ABCD$ is a straight line. Find the value of x.



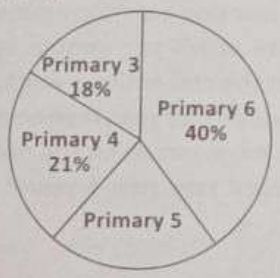
A. 25°
B. 35°
C. 45°
D. 55°

27. The given figure is not drawn to scale and $ABCD$ is a parallelogram. Find $\angle CDE$.



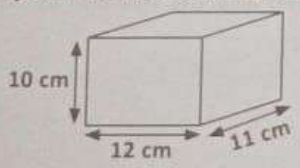
A. 168°
B. 186°
C. 136°
D. 163°

28. The pie chart below shows the number of students attending a poetry recital. If there were 105 Primary 5 students, then how many students attended the poetry recital in all?



A. 400
B. 500
C. 600
D. 700

29. How much space is left when the maximum number of 5 cm cubes are put into the box shown in the diagram?

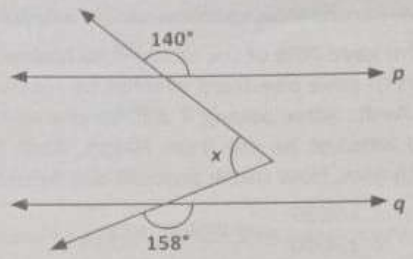


A. 125 cm^3
B. 320 cm^3
C. 570 cm^3
D. 1000 cm^3

30. The six-day forecast for Antarctica lists the temperatures (in Celsius) as −52°C, −53°C, −40°C, −58°C, − 70°C, −79°C. Which options shows the temperatures in order from the lowest to the highest?

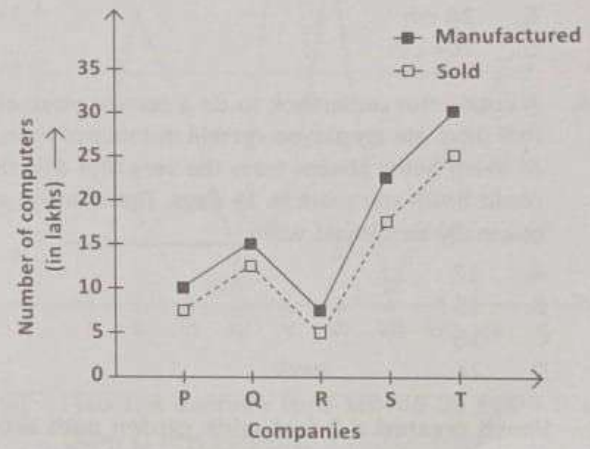
A. −79°C, −70°C, −52°C, −53°C, −40°C, −58°C
B. −52°C, −53°C, −58°C, −70°C, −79°C, −40°C
C. −79°C, −70°C, −58°C, −53°C, −52°C, −40°C
D. −40°C, −52°C, −53°C, −58°C, −70°C, −79°C

31. In the figure given below (not drawn to scale), if $p \| q$, then 'x' equals _____.



A. 18°
B. 22°
C. 62°
D. None of these

32. The following line graph shows the number of computers manufactured and sold by various companies (number in lakhs). Study it carefully and answer the following question.



What is the difference between the average number of computers manufactured by all the companies together and the average number of computers sold by all the companies together?

A. 45000
B. 50000
C. 350000
D. 750000

33. For which equation(s) is $x = 3$ a solution?

I. $2x - 5 + 3x = 10$

II. $\frac{x+7}{2} = 5$

III. $4x - 11 = 17$

IV. $9 = -(x - 1) + 11$

A. I only
B. I and II
C. I, II and III
D. I, II and IV

34. If y varies directly as x^2 and $x = 2$ when $y = 3$, then find y when x is 6.

A. 9
B. 12
C. 27
D. 15

35. If $p^x = q^y = r^z$ and $p^3 = q^2 r$, then $\frac{3}{x} - \frac{2}{y} =$

A. xyz
B. $\frac{1}{z}$
C. $\frac{y}{z}$
D. $\frac{y}{x}$

EVERYDAY MATHEMATICS

36. Ashu gave 20% of the amount he had to Naksh. Naksh in turn gave one-third of what he received from Ashu to Amit. After paying ₹ 450 to the taxi driver out of the amount he got from Naksh, Amit has ₹ 720 left with him. How much amount did Ashu have initially?

A. ₹ 25000
B. ₹ 18000
C. ₹ 17550
D. ₹ 15500

37. Prabhat painted $\frac{1}{2}$ of a pole red and $\frac{2}{3}$ of the remaining black. The rest was left unpainted. What was the length of the pole that was painted red, if 34 cm of the pole was left unpainted?

A. 204 cm
B. 102 cm
C. 34 cm
D. 104 cm

38. A contractor undertook to do a certain piece of work in 9 days. He employed certain number of men, but 6 of them being absent from the very first day, the rest could finish the work in 15 days. The number of men originally employed were _____.

A. 12
B. 15
C. 18
D. 24

39. Vansh created a 2-feet wide garden path around a circular garden (outside). The radius of the garden is 7 feet. He wants to cover the path with stones. If 7 bags of stones are consumed for every 8 square feet of path, then how many bags of stones Vansh will need to cover the path?

A. 88
B. 78
C. 98
D. 68

40. A swimming pool is 25 m long and 12 m broad, when a number of men dive into the pool, the height of the water rises by 1 cm. If the average amount of water displaced by one of the men be 0.2 cu. m, then how many men are there in the pool?

A. 10
B. 5
C. 20
D. 15

41. Aarav bought a television set whose marked price was ₹ 60000. He then gets a discount of 20% and pays a GST of 12%. How much does he pay for the television set?

A. ₹ 33660
B. ₹ 43650
C. ₹ 47250
D. ₹ 53760

42. A person invested a certain amount at simple interest at the rate of 6% per annum earning ₹ 900 as an interest at the end of three years. If the interest been compounded every year, then how much more interest would he have earned on the same amount with the same interest rate after 3 years?

A. ₹ 56.08
B. ₹ 54.08
C. ₹ 45.05
D. ₹ 55.08

43. The total value of a collection of coins of denominations ₹ 1, 50 paise, 25 paise, 10 paise and 5 paise is ₹ 152. If the number of coins of each denomination is the same, then find the number of 25 paise coins.

A. 160
B. 75
C. 80
D. 90

44. There were 240 mangoes in basket P and basket Q. $\frac{2}{3}$ of the mangoes in basket P were green and the rest were yellow. $\frac{4}{9}$ of the mangoes in basket Q were green and the rest were yellow. The number of yellow mangoes in both baskets was equal. How many green mangoes were there altogether?

A. 140
B. 150
C. 90
D. 120

45. Samiksha has digit cards 3, 6 and 9. She makes 2-digit numbers using each card only once. The probability that a 2-digit number chosen is divisible by 2 is _____.

A. $\frac{5}{6}$
B. $\frac{1}{6}$
C. $\frac{1}{3}$
D. $\frac{2}{3}$

ACHIEVERS SECTION

46. Fill in the blanks and select the CORRECT option.

(i) The value of $p^2q(p^3 - q + 1) - pq(p^4 - 2p^2 + 2p) - q(p^3 - p^2 - 1)$ at $p = 4$, $q = 4$ is _____.

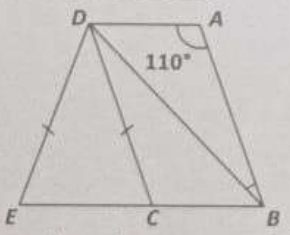
(ii) _____ should be added to the sum of $4l^2 - 5l + 7$, $-6l^2 - 4l - 11$ and $2l^2 + 9l - 8$ to get zero.

(iii) If $P = -(x - 4)$, $Q = -4(y + 1)$ and $R = -x + 4y$, then the value of k when $P + Q + R = kx$, is _____.

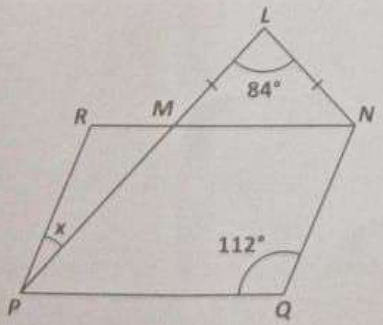
	(i)	(ii)	(iii)
A.	4	12	−2
B.	4	−12	−2
C.	4	−12	2
D.	8	12	−2

47. Solve the following and select the CORRECT option.

(i) In the given figure (not drawn to scale), *ABCD* is a parallelogram and *DEC* is an isosceles triangle. Find the measure of $\angle CDE$.

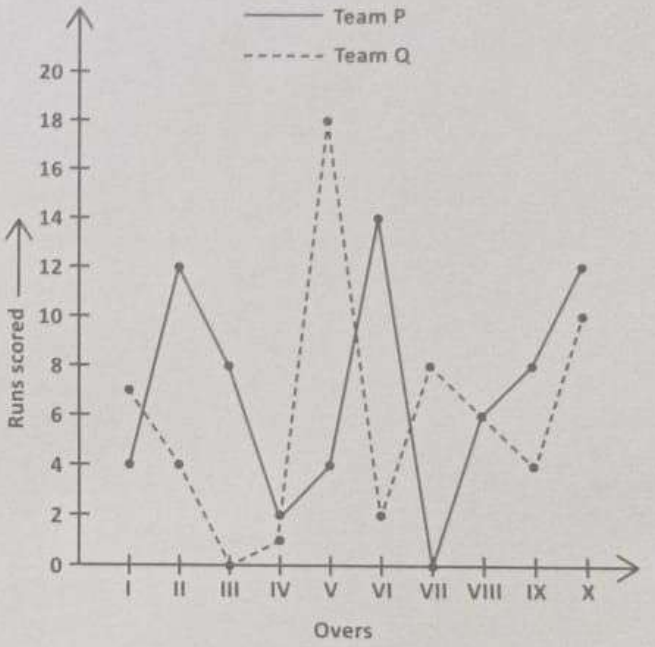


(ii) In the figure (not drawn to scale) given below, *LMN* is an isosceles triangle. *PQNR* is a parallelogram. Find the measure of $\angle x$.



	(i)	(ii)
A.	20°	20°
B.	20°	40°
C.	40°	40°
D.	40°	20°

48. The following graph shows the runs scored by two teams *P* and *Q* in first 10 overs. Study the graph carefully and answer the following questions.



(i) Find the average runs scored by team P and team Q respectively.

(ii) In which over, the difference between the runs scored by the teams was maximum?

	(i)	(ii)
A.	6, 7.4	II
B.	4.7, 5.8	VI
C.	7, 6	V
D.	4.7, 5.8	Both V and VI

49. Match the columns and select the CORRECT option.

Column-I	Column-II
(P) The value of $\left\{\frac{4^{p+\frac{1}{4}} \times \sqrt{2 \times 2^{p}}}{2\sqrt{2^{-p}}}\right\}^{\frac{1}{p}}$, for non-zero rational number p, is	(i) 3
(Q) $3 \times \sqrt[3]{125} - 5 \times \sqrt[5]{64} + \sqrt[4]{256} + 2 \times \left(\frac{8}{27}\right)^{-\frac{1}{3}} =$	(ii) 14
(R) If $\sqrt[3]{3^{x}} = 5^{\frac{1}{4}}$ and $\sqrt[4]{5^{y}} = \sqrt{3}$, then the value of $2xy$ is	(iii) 8
(S) If $p^{q} \cdot q^{p} = 5184$, then the value of $2(p + q)$ is	(iv) 12

A. (P) → (iii), (Q) → (iv), (R) → (i), (S) → (ii)
B. (P) → (iii), (Q) → (iv), (R) → (ii), (S) → (i)
C. (P) → (iii), (Q) → (ii), (R) → (i), (S) → (iv)
D. (P) → (iv), (Q) → (iii), (R) → (i), (S) → (ii)

50. Read the given statements carefully and select the CORRECT option.

Statement-1 : A number of people ride the bus to the city. Ten of them are children. The bus conductor receives ₹ 110 for all the tickets. If the children pay ₹ 2 per ticket and adults pay ₹ 4.50 per ticket, then the number of adults are 10.

Statement-2 : If $\frac{a-13}{3} - \frac{a-3}{4} = \frac{2a+1}{5}$, then the value of a is 13.

A. Both Statement-1 and Statement-2 are true.
B. Both Statement-1 and Statement-2 are false.
C. Statement-1 is true but Statement-2 is false.
D. Statement-1 is false but Statement-2 is true.

SPACE FOR ROUGH WORK