

**SOF INTERNATIONAL  
MATHEMATICS OLYMPIAD  
2024-25**

DO NOT OPEN THIS BOOKLET UNTIL ASKED TO DO SO

CLASS **6**  
**SET-B**

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 one 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. ● (A) (B) (C) (D)

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.:.....



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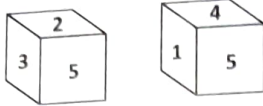
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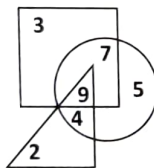
1. Two different positions of a dice are shown here. Which number will be at the top, if 6 is at the bottom?



- A. 3  
B. 2  
C. 4  
D. 5
2. Find the missing letter, if a certain rule is followed either row-wise or column-wise.

|   |   |   |
|---|---|---|
| U | X | Z |
| M | P | R |
| L | ? | Q |

- A. O  
B. Q  
C. S  
D. M
3. In the given Venn diagram, square represents soldiers, circle represents females and triangle represents married people. Which of the following numbers represents unmarried female soldiers?



- A. 5  
B. 7  
C. 4  
D. 9
4. Rajesh walked 70 m towards North and then took a left turn and walked another 70 m, then he turned to his left again and walked 30 m. Finally, he turned right and walked 25 m. In which direction is he now with respect to his starting point?
- A. North-West  
B. South-East  
C. South  
D. North-East
5. Arrange the given words in a logical sequence and select the CORRECT option.

1. Hundreds      2. Ones  
3. Tens          4. Thousands  
5. Lakhs

- A. 2, 3, 1, 5, 4  
B. 3, 1, 2, 4, 5

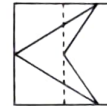
- C. 2, 3, 1, 4, 5  
D. 3, 2, 1, 4, 5

6. Select the CORRECT water image of the given word.

WELCOME

- A. MEГCOWE  
B. MEГCOWE  
C. MEГCOWE  
D. MEГCOWE

7. A transparent square sheet with a pattern and a dotted line on it is given. Select a figure from the options as to how the pattern would appear when the transparent sheet is folded along the dotted line.



- A.
- B.
- C.
- D.

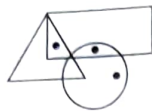
8. If 'Apple' is called 'Grass', 'Grass' is called 'Water', 'Water' is called 'Coal', and 'Coal' is called 'Leaf', then \_\_\_\_\_ is colourless.

- A. Water  
B. Coal  
C. Grass  
D. Apple

9. W is the sister of X. X is the father of V and husband of T. V is the brother of Z. How is V related to W?

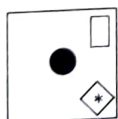
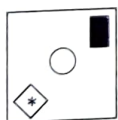
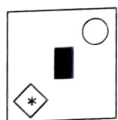
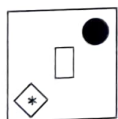
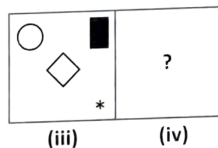
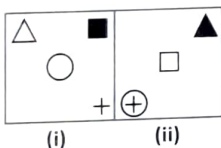
- A. Nephew  
B. Son  
C. Uncle  
D. Son-in-law

10. Select a figure from the options which does NOT satisfy the same conditions of placement of dots as in the given figure.



- A.
- B.
- C.
- D.

11. There is a certain relationship between figures (i) and (ii). Establish the similar relationship between figures (iii) and (iv) by selecting a suitable figure from the options that will replace the (?) in figure (iv).



12. If 'x' is called '-', '-' is called '+', '+' is called '÷' and '÷' is called 'x', then find the value of  $510 + 17 \times 15 \div 2$ .

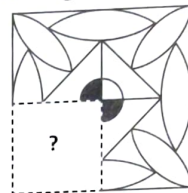
- A. 60  
B. 0  
C. 30  
D. 12

13. Ankit works part time from his home on all the dates which are multiples of 5 and on the rest of the dates, he goes to office in February 20XX. How many days does he go to office in that month, if every Sunday is a holiday?

| FEBRUARY 20XX |     |     |     |     |     |     |
|---------------|-----|-----|-----|-----|-----|-----|
| Sun           | Mon | Tue | Wed | Thu | Fri | Sat |
|               |     |     |     |     |     | 1   |
| 2             | 3   | 4   | 5   | 6   | 7   | 8   |
| 9             | 10  | 11  | 12  | 13  | 14  | 15  |
| 16            | 17  | 18  | 19  | 20  | 21  | 22  |
| 23            | 24  | 25  | 26  | 27  | 28  | 29  |

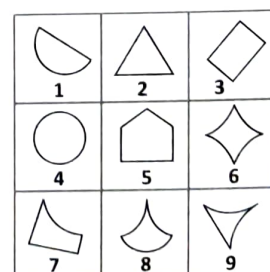
- A. 21  
B. 20  
C. 23  
D. 19

14. Which of the following figures will complete the pattern in the given figure?



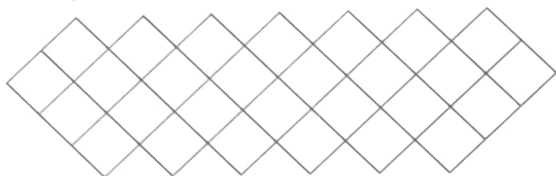
- A.
- B.
- C.
- D.

15. Group the given figures into three classes on the basis of their identical properties using each figure only once.



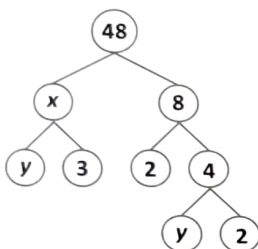
- A. 1, 7, 8; 2, 3, 5; 4, 6, 9  
B. 1, 7, 9; 2, 3, 5; 4, 6, 8  
C. 1, 7, 9; 2, 3, 6; 4, 5, 8  
D. 1, 2, 3; 4, 5, 6; 7, 8, 9

16. How many shapes of the given figure must be shaded so that  $\frac{3}{7}$  of the figure is unshaded?



- A. 12  
B. 14  
C. 16  
D. 18

17. Find the value of  $\frac{x}{y}$ .



- A. 2  
B. 6  
C. 4  
D. 3

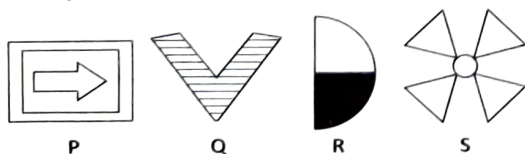
18. Find the estimated difference of 789562 and 435821 when each number is rounded off to the nearest thousands place.

- A. 360000  
B. 354000  
C. 352000  
D. 362000

19. In which of the following options, the sum of given integers is less than zero?

- A. 171, -23, -120  
B. -815, 750, -230  
C. -413, -315, 880  
D. Both B and C

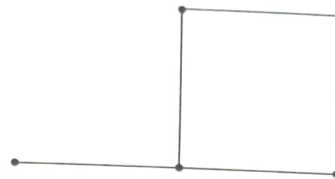
20. Which of the following figures have more than two lines of symmetry?



- A. Only P and Q  
B. Only S

- C. All P, Q, R, S  
D. Only Q and R

21. How many line segments are there in the given figure?



- A. 6  
B. 7  
C. 5  
D. 8

**DIRECTIONS (22-23):** The given table shows the number of people who visited the library during a week. Study the given table carefully and answer the following questions.

| Days      | Number of people |
|-----------|------------------|
| Monday    |                  |
| Tuesday   |                  |
| Wednesday |                  |
| Thursday  |                  |
| Friday    |                  |
| Saturday  |                  |
| Sunday    |                  |

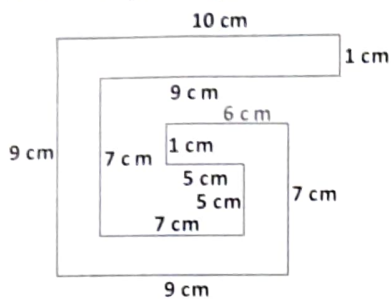
22. How many more people visited the library on Monday, Wednesday and Thursday altogether than on Saturday and Sunday together?

- A. 40  
B. 39  
C. 28  
D. 43

23. Find the fraction of number of people who visited on Tuesday to the total number of people who visited in the whole week.

- A.  $\frac{3}{61}$   
B.  $\frac{6}{61}$   
C.  $\frac{3}{22}$   
D. None of these

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



- A. 36 sq. cm  
B. 37 sq. cm  
C. 28 sq. cm  
D. 63 sq. cm
25. In which of the following options, the smallest angle formed by the hands of a clock is an obtuse angle?

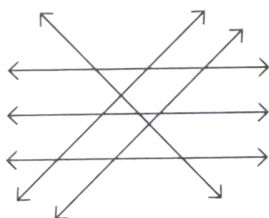


D. All of these

26. If  $X$  is the greatest 6-digit number that can be formed by using the digits 3, 5, 0, 2 and 9 (using each digit at least once), then which of the following options shows the number name of  $X$  in International system of numeration?

- A. Nine lakh ninety five thousand three hundred twenty  
B. Nine hundred ninety five thousand three hundred twenty  
C. Nine lakh fifty five thousand three hundred two  
D. Nine hundred ninety thousand five hundred thirty two

27. How many more pairs of intersecting lines than parallel lines are there in the given figure?



- A. 7  
B. 6  
C. 5  
D. 8

28. Which of the following is true for the shaded fractions of models shown below?

Model-1



Model-2



P : Shaded fraction of model-1

Q : Shaded fraction of model-2

- A.  $P = Q$   
B.  $P < Q$   
C.  $P > Q$   
D. None of these

29. A wire of length 180 m is bent in the form of a rectangle. If the breadth of rectangle is half the length of rectangle, then find the area of rectangle.

- A. 2700 sq. m  
B. 1800 sq. m  
C. 2150 sq. m  
D. None of these

30. Compare the following and fill the box using  $<$ ,  $>$  or  $=$ .  
 $95.23 + 220.80 - 11.05$    $350.91 + 18.31 - 57.73$

- A.  $>$   
B.  $=$   
C.  $<$   
D. Can't be determined

31. Which of the following options shows the integers arranged in descending order?

- A. -31, -25, -10, 12, 18  
B. -20, -39, -41, 0, 11  
C. 49, 38, 20, -10, -25  
D. 78, 57, -20, -11, -5

32. What is the product of all the common factors of 32 and 48?

- A. 64  
B. 384  
C. 1536  
D. 1024

33. Which of the following gives the LEAST value?

- A. MMMCMLIX - MMDCCXVII  
B. MMCDLXV + MCCXLIV  
C. DCCCXCIX + CDXLVII  
D. MMDCCIX - MMCDIII

34. Select the CORRECT option.

- A. 5 kg 500 g + 1500 g = 7 kg 500 g
- B. 9 kL 300 L = 930000 dL
- C. 550 m more than 5 hm = 10 hm 50 m
- D. None of these

35. Which of the following numbers is divisible by 4?

- A. 420632
- B. 315272
- C. 555124
- D. All of these

## EVERYDAY MATHEMATICS

36. Karan spent half of his pocket money to buy a pair of shoes. He spent half of the remaining on a book. He also spent half of the remaining to buy a study table. He was left with ₹ 350. With how much money he began his shopping?

- A. ₹ 4000
- B. ₹ 3000
- C. ₹ 2800
- D. ₹ 1080

37. Five caps are placed on a table and having digits 1, 4, 0, 6 and 8 written on them. If Rekha formed the greatest and the smallest 6-digit numbers using the above digits (using each digit at least once), then find the sum of numbers formed.

- A. 875680
- B. 986878
- C. 928170
- D. 756868

38. Rashi walked five times around a rectangular field of length 52 m and breadth 30 m. Kirti walked seven times around a square field of side 65 m. Who walked more distance and by how much?

- A. Kirti, 1000 m
- B. Rashi, 1000 m
- C. Kirti, 1260 m
- D. Rashi, 1260 m

39. On a particular day in December, the minimum temperature in Manali was  $-8^{\circ}\text{C}$ , whereas the minimum temperature in Jaipur was  $23^{\circ}\text{C}$ . What was the difference between the two temperatures?

- A.  $30^{\circ}\text{C}$
- B.  $31^{\circ}\text{C}$
- C.  $29^{\circ}\text{C}$
- D.  $8^{\circ}\text{C}$

40. A company manufactured 125360 black pens and 93515 blue pens. All the pens were packed in boxes. If each box contains 425 pens, then find the total number of boxes packed in all.

- A. 525
- B. 490

- C. 570
- D. 515

41. Puneet went to Gym at 18 : 25 hours. He completed his exercise at 19:52 hours. For how much time did he exercise?

- A. 1 hour 33 minutes
- B. 1 hour 27 minutes
- C. 72 minutes
- D. Both B and C

42. The weight of Sneha is 35.28 kg. Sakshi is 4.15 kg heavier than Sneha. If Monika is 1.05 kg heavier than Sakshi, then find the total weight of all of them.

- A. 111.25 kg
- B. 97.05 kg
- C. 113.09 kg
- D. None of these

43. Find the number of envelopes that can be made out of a sheet of paper 384 cm by 168 cm, if each envelope requires a piece of paper of size 16 cm by 12 cm.

- A. 340
- B. 344
- C. 336
- D. 342

44. Amit bought MCDLXX apples, CMXLVIII oranges and MCCCXCIX watermelons from a wholesaler. How many total fruits did he buy?

- A. 3817
- B. 3750
- C. 3250
- D. 2913

45. Three girls steps off together from the point X. Their steps measures 50 cm, 75 cm and 90 cm respectively. What is the minimum distance each should cover so that all can cover the distance in complete steps?

- A. 150 cm
- B. 800 cm
- C. 450 cm
- D. None of these

# ACHIEVERS SECTION

46. Match the following and select the CORRECT option.

| Column-I                                           | Column-II |
|----------------------------------------------------|-----------|
| P. Successor of $(170 + (-20) + 219 + (-38))$ is   | (i) -937  |
| Q. Predecessor of $((-911) + (175) + (-200))$ is   | (ii) -102 |
| R. Successor of $(480 + (-419) + (-729) + 330)$ is | (iii) 332 |
| S. Additive inverse of $(152 + 283 + (-333))$ is   | (iv) -337 |

- A. P-(ii); Q-(i); R-(iv); S-(iii)  
 B. P-(iii); Q-(iv); R-(i); S-(ii)  
 C. P-(iii); Q-(i); R-(iv); S-(ii)  
 D. P-(iv); Q-(ii); R-(iii); S-(i)

47. Observe the given figures carefully and fill in the blanks.

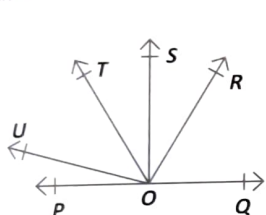


Fig. (p)

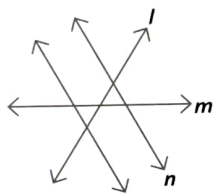


Fig. (q)

- (i) There are \_\_\_\_\_ angles above the line PQ in Fig. (p).  
 (ii) There are \_\_\_\_\_ more acute angles than obtuse angles in Fig. (p).  
 (iii) There is/are \_\_\_\_\_ pair(s) of perpendicular lines in Fig. (q).

- |    | (i) | (ii) | (iii) |
|----|-----|------|-------|
| A. | 15  | 4    | 0     |
| B. | 14  | 4    | 0     |
| C. | 15  | 0    | 2     |
| D. | 14  | 5    | 2     |

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

Statement-I : In the word CREATIVE, the sum of fraction of vowels and the fraction of alphabets made up of only straight lines is  $\frac{4}{8}$ .

Statement-II : If  $\frac{7}{9} = \frac{p}{729} = \frac{q}{135}$ , then the values of p, q and p + q are 81, 105 and 186 respectively.

- A. Both Statement-I and Statement-II are true.  
 B. Both Statement-I and Statement-II are false.  
 C. Statement-I is true but Statement-II is false.  
 D. Statement-I is false but Statement-II is true.

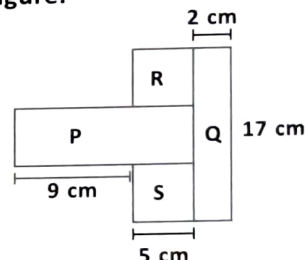
49. Read the given statements carefully and state T for true and F for false.

- (i) The number 705830 is divisible by both 2 and 5.  
 (ii) The number of common prime factors of 150 and 275 is 5.  
 (iii) If the number 2579x is divisible by 8 (where x is a single digit), then the value of x can be 2.  
 (iv) If a number is prime, then it is always odd.

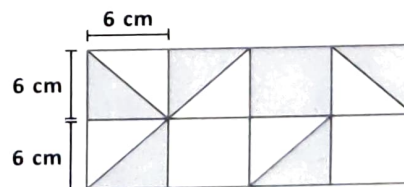
- |    | (i) | (ii) | (iii) | (iv) |
|----|-----|------|-------|------|
| A. | T   | T    | F     | F    |
| B. | F   | F    | T     | F    |
| C. | F   | T    | F     | T    |
| D. | T   | F    | T     | F    |

50. Solve the following and select the CORRECT option.

- (p) The figure given below (not drawn to scale) is made up of two rectangles P and Q & two identical squares R and S. Find the perimeter of the figure.



- (q) Find the area of unshaded part in the given figure.



- |    | (p)   | (q)                 |
|----|-------|---------------------|
| A. | 66 cm | 162 cm <sup>2</sup> |
| B. | 61 cm | 196 cm <sup>2</sup> |
| C. | 66 cm | 216 cm <sup>2</sup> |
| D. | 61 cm | 162 cm <sup>2</sup> |

SPACE FOR ROUGH WORK