

Class 10 · Reasoning Olympiad

Total questions 50	Total marks 60	Time 60 minutes	Negative marking None
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Each question has four options, of which only one is correct. Mark your answer on the answer sheet. The Achievers Section carries higher marks per question. The answer key with full solutions is at the end of this paper.

This is original practice material written to the Level 1 pattern. It is not a past paper and is not affiliated with SOF or any official olympiad body.

Logical Reasoning

45 questions · 1 mark each · 45 marks

Q1. In a row of 43 children, Imran is 8th from the left end. What is Imran's position from the right end?

- (A) 37th (B) 35th (C) 38th (D) 36th

Q2. Five friends A, B, C, D and E sit in a row of five seats. A sits at the extreme left end, D sits at the extreme right end, C sits exactly in the middle and B sits between A and C. Who sits in the fourth seat from the left?

- (A) D (B) B (C) E (D) C

Q3. A father is 22 years older than his son. The son is 8 years old now. How old will the father be after 8 years?

- (A) 39 years (B) 46 years (C) 38 years (D) 30 years

Q4. Hunger : Food :: Thirst : ____

- (A) Shade (B) Sleep (C) Air (D) Water

Q5. Pointing to a boy in a photograph, Rahul said, "He is the son of my paternal grandfather's only son." How is the boy related to Rahul?

- (A) Brother (B) Nephew (C) Uncle (D) Cousin

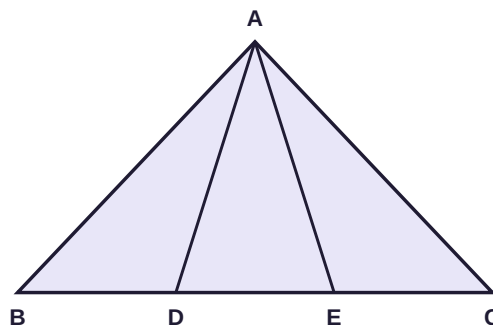
Q6. In a class, 20 students play cricket, 10 play football and 6 play both games. Every student plays at least one of the two. How many students are there in the class?

- (A) 25 (B) 30 (C) 24 (D) 18

Q7. In a certain code JAR is written as NEV. How is BAT written in that code?

- (A) GFY (B) XWP (C) FEX (D) XEF

Q8. How many triangles are there in the given figure?



- (A) 7 (B) 8 (C) 6 (D) 5

Q9. $10 : 100 :: 9 : \underline{\hspace{1cm}}$

- (A) 100 (B) 81 (C) 64 (D) 18

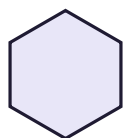
Q10. Which word would come FIRST in a dictionary?

- (A) maple (B) mother (C) museum (D) melon

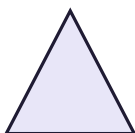
Q11. Which one does NOT belong with the others?

- (A) Sparrow (B) Crow (C) Parrot (D) Bat

Q12. Which of these figures has exactly 6 lines of symmetry?



(A)



(B)



(C)



(D)

Q13. In the first row the numbers are 9, 9 and 36. In the second row they are 7, 2 and 18. In the third row they are 4, 8 and ____ . The same rule applies to every row.

- (A) 25 (B) 26 (C) 23 (D) 24

Q14. Meera walks 8 m towards north, turns right and walks 6 m, then turns right again and walks 8 m. How far is Meera from the starting point, and in which direction?

- (A) 14 m, North (B) 8 m, East (C) 6 m, West (D) 6 m, East

Q15. If TIN is written as 20 - 9 - 14 using the positions of the letters in the alphabet, how is MAP written?

- (A) 14 - 2 - 17 (B) 13 - 1 - 16 (C) 16 - 1 - 13 (D) 14 - 26 - 11

Q16. If the 8th of a month is a Monday, what day of the week is the 21st of the same month?

- (A) Tuesday (B) Monday (C) Sunday (D) Saturday

Q17. Read the statements and choose the conclusion that MUST be true.

All squares are rectangles. All rectangles have four sides.

- (A) Some squares have three sides. (B) All squares have four sides.
(C) All rectangles are squares. (D) No rectangle is a square.

Q18. Arun walks 3 m north, then 6 m east, then 2 m south. Where is Arun now, relative to the starting point?

- (A) 1 m north and 6 m east (B) 2 m north and 6 m east
(C) 1 m north and 7 m east (D) 3 m north and 6 m east

Q19. Find the next number in the pattern: 2, 7, 17, 37, ____

- (A) 75 (B) 80 (C) 74 (D) 77

Q20. Find the odd one out: 21, 49, 56, 63, 71

- (A) 49 (B) 71 (C) 63 (D) 56

Q21. Three of the following four are alike and form a group. Which one does NOT belong?

- (A) Banana (B) Apple (C) Mango (D) Cabbage

Q22. Find the next number in the pattern: 14, 18, 22, 26, ____

- (A) 26 (B) 31 (C) 34 (D) 30

Q23. In a queue, Nita is 4th from the front and 9th from the back. How many people are in the queue altogether?

- (A) 12 (B) 13 (C) 14 (D) 11

Q24. Which letter comes next? E, G, J, N, ____

- (A) R (B) S (C) T (D) Q

Q25. Count backward in 3s: 18, 15, 12, 9, ____

- (A) 3 (B) 7 (C) 6 (D) 9

Q26. Which letter comes next? H, J, L, N, ____

- (A) O (B) Q (C) R (D) P

Q27. In a row of 43 children, Ravi is 34th from the left end. What is Ravi's position from the right end?

- (A) 9th (B) 11th (C) 12th (D) 10th

Q28. A father is 6 years older than his son. The son is 18 years old now. How old will the father be after 6 years?

- (A) 30 years (B) 31 years (C) 36 years (D) 24 years

Q29. Book : Library :: Medicine : ____

- (A) Garage (B) Studio (C) Bakery (D) Pharmacy

Q30. In a class, 9 students play cricket, 7 play football and 3 play both games. Every student plays at least one of the two. How many students are there in the class?

- (A) 16 (B) 13 (C) 10 (D) 14

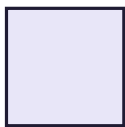
Q31. In a certain code FAN is written as IDQ. How is BAT written in that code?

- (A) WDE (B) YXQ (C) FEX (D) EDW

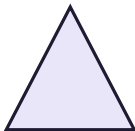
Q32. 6 : 36 :: 12 : ____

- (A) 144 (B) 24 (C) 121 (D) 169

Q33. Which of these figures has exactly 5 lines of symmetry?



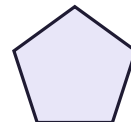
(A)



(B)



(C)



(D)

Q34. In the first row the numbers are 7, 3 and 19. In the second row they are 6, 3 and 16. In the third row they are 2, 7 and ____ . The same rule applies to every row.

- (A) 13 (B) 14 (C) 11 (D) 12

Q35. Riya walks 4 m towards north, turns right and walks 3 m, then turns right again and walks 4 m. How far is Riya from the starting point, and in which direction?

- (A) 3 m, West (B) 4 m, East (C) 7 m, North (D) 3 m, East

Q36. If DOG is written as 4 - 15 - 7 using the positions of the letters in the alphabet, how is PEN written?

- (A) 17 - 6 - 15 (B) 14 - 5 - 16 (C) 11 - 22 - 13 (D) 16 - 5 - 14

Q37. If the 12th of a month is a Saturday, what day of the week is the 23th of the same month?

- (A) Thursday (B) Tuesday (C) Friday (D) Wednesday

Q38. Read the statements and choose the conclusion that **MUST** be true.

All metals conduct electricity. Copper is a metal.

- (A) All conductors are copper. (B) Copper does not conduct electricity.
(C) Copper conducts electricity. (D) Only copper is a metal.

Q39. Sima walks 10 m north, then 5 m east, then 8 m south. Where is Sima now, relative to the starting point?

- (A) 10 m north and 5 m east (B) 2 m north and 5 m east
(C) 3 m north and 5 m east (D) 2 m north and 6 m east

Q40. Find the next number in the pattern: 5, 11, 23, 47, ____

- (A) 94 (B) 93 (C) 95 (D) 96

Q41. Find the odd one out: 11, 12, 15, 18, 33

- (A) 33 (B) 15 (C) 12 (D) 11

Q42. Find the next number in the pattern: 10, 16, 22, 28, ____

- (A) 40 (B) 28 (C) 35 (D) 34

Q43. In a queue, Deep is 4th from the front and 7th from the back. How many people are in the queue altogether?

- (A) 10 (B) 12 (C) 11 (D) 9

Q44. Which letter comes next? B, D, G, K, ____

- (A) O (B) N (C) Q (D) P

Q45. Count backward in 10s: 130, 120, 110, 100, ____

- (A) 90 (B) 91 (C) 100 (D) 80

Achievers Section

5 questions · 3 marks each · 15 marks

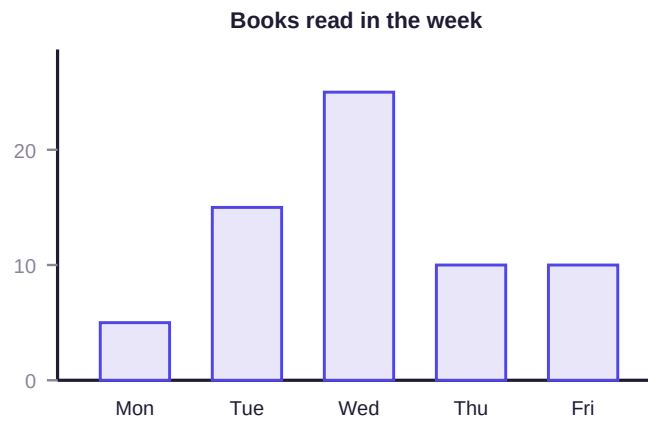
Q46. A file is 2 megabytes. Roughly how many kilobytes is that?

- (A) About 200 KB (B) About 20 KB
(C) About 2 KB (D) About 2,000 KB

Q47. How many numbers between 60 and 90 leave a remainder of 3 when divided by 8?

- (A) 4 (B) 2 (C) 3 (D) 5

Q48. The bar graph shows the number of books read by a class on each day of one week. How many books were read in the whole week?



- (A) 70 (B) 65 (C) 75 (D) 60

Q49. Rahul finished the puzzle in two minutes and said it was 'to burn the midnight oil'. What did he mean?

- (A) to cook dinner (B) to waste money
(C) to fall asleep (D) to work late into the night

Q50. The clock in the figure shows 4:30. What is the angle between the hour hand and the minute hand?



- (A) 30° (B) 60° (C) 75° (D) 45°

Answer Key

1	2	3	4	5	6	7	8	9	10
D	C	C	D	A	C	C	C	B	A
11	12	13	14	15	16	17	18	19	20
D	A	D	D	B	C	B	A	D	B
21	22	23	24	25	26	27	28	29	30
D	D	A	B	C	D	D	A	D	B
31	32	33	34	35	36	37	38	39	40
D	A	D	D	D	D	D	C	B	C

41	42	43	44	45	46	47	48	49	50
D	D	A	D	A	D	C	B	D	D

Solutions

- Q1. (D) Position from the right = total - position from the left + 1 = $43 - 8 + 1 = 36$ th.
- Q2. (C) Seat 1 = A, seat 3 = C, seat 5 = D. B must be between A and C, so B takes seat 2, and the only friend left for seat 4 is E.
- Q3. (C) The father is $8 + 22 = 30$ now, so after 8 years he will be $30 + 8 = 38$ years.
- Q4. (D) The second word relates to the first in the same way Water relates to Thirst.
- Q5. (A) Rahul's paternal grandfather's only son is Rahul's own father, so that man's son is Rahul's own sibling. The answer is Brother.
- Q6. (C) $20 + 10 - 6 = 24$. The 6 who play both were counted twice, so they are subtracted once.
- Q7. (C) Each letter moves 4 place(s) forward in the alphabet, so BAT becomes FEX.
- Q8. (C) Every triangle has apex A and two of the 4 base points as its other corners. Choosing 2 from 4 gives 6 triangles.
- Q9. (B) The second number is the first multiplied by itself: $10 \times 10 = 100$, so $9 \times 9 = 81$.
- Q10. (A) In alphabetical order the words run maple, melon, mother, museum, so maple comes first.
- Q11. (D) Bat is a mammal, not a bird.
- Q12. (A) Counting lines of symmetry: regular hexagon has 6, equilateral triangle has 3, square has 4, rectangle has 2. The answer is figure (A).
- Q13. (D) The rule is: add the two numbers and double the result. Check: 9, 9 gives 36 and 7, 2 gives 18; so 4, 8 gives 24.
- Q14. (D) The two 8 m walks (north, then south) cancel out, leaving only the 6 m walked towards the east. So the answer is 6 m, East.
- Q15. (B) M is letter 13 and A is letter 1 and P is letter 16, so $MAP = 13 - 1 - 16$.
- Q16. (C) 13 days later is 1 week(s) and 6 day(s), so the day moves 6 place(s) on from Monday to Sunday.
- Q17. (B) From "All squares are rectangles. All rectangles have four sides." it follows necessarily that all squares have four sides.
- Q18. (A) The 2 m south cancels part of the 3 m north, leaving $3 - 2 = 1$ m north, and the 6 m east is unchanged. So Arun is 1 m north and 6 m east.
- Q19. (D) Each number is doubled and 3 is added: $37 \times 2 + 3 = 77$.
- Q20. (B) Every other number is a multiple of 7. 71 is not.
- Q21. (D) Mango, Apple, Banana are all fruits; Cabbage is not.
- Q22. (D) Each number is 4 more than the one before it, so the next is $26 + 4 = 30$.
- Q23. (A) Counting Nita only once: $4 + 9 - 1 = 12$ people.
- Q24. (B) The gaps grow by one each time (+2, +3, +4, +5), so after N the next letter is S.
- Q25. (C) Subtracting 3 from 9 gives 6.
- Q26. (D) Each letter moves 2 place(s) forward in the alphabet, so after N comes P.
- Q27. (D) Position from the right = total - position from the left + 1 = $43 - 34 + 1 = 10$ th.
- Q28. (A) The father is $18 + 6 = 24$ now, so after 6 years he will be $24 + 6 = 30$ years.
- Q29. (D) The second word relates to the first in the same way Pharmacy relates to Medicine.
- Q30. (B) $9 + 7 - 3 = 13$. The 3 who play both were counted twice, so they are subtracted once.
- Q31. (D) Each letter moves 3 place(s) forward in the alphabet, so BAT becomes EDW.
- Q32. (A) The second number is the first multiplied by itself: $6 \times 6 = 36$, so $12 \times 12 = 144$.

- Q33. (D) Counting lines of symmetry: square has 4, equilateral triangle has 3, rectangle has 2, regular pentagon has 5. The answer is figure (D).
- Q34. (D) The rule is: multiply the two numbers, then subtract 2. Check: 7, 3 gives 19 and 6, 3 gives 16; so 2, 7 gives 12.
- Q35. (D) The two 4 m walks (north, then south) cancel out, leaving only the 3 m walked towards the east. So the answer is 3 m, East.
- Q36. (D) P is letter 16 and E is letter 5 and N is letter 14, so $PEN = 16 - 5 - 14$.
- Q37. (D) 11 days later is 1 week(s) and 4 day(s), so the day moves 4 place(s) on from Saturday to Wednesday.
- Q38. (C) From "All metals conduct electricity. Copper is a metal." it follows necessarily that copper conducts electricity.
- Q39. (B) The 8 m south cancels part of the 10 m north, leaving $10 - 8 = 2$ m north, and the 5 m east is unchanged. So Sima is 2 m north and 5 m east.
- Q40. (C) Each number is doubled and 1 is added: $47 \times 2 + 1 = 95$.
- Q41. (D) Every other number is a multiple of 3. 11 is not.
- Q42. (D) Each number is 6 more than the one before it, so the next is $28 + 6 = 34$.
- Q43. (A) Counting Deep only once: $4 + 7 - 1 = 10$ people.
- Q44. (D) The gaps grow by one each time (+2, +3, +4, +5), so after K the next letter is P.
- Q45. (A) Subtracting 10 from 100 gives 90.
- Q46. (D) 1 megabyte is about 1,000 kilobytes, so 2 MB is about 2,000 KB.
- Q47. (C) The numbers are 67, 75, 83 — 3 of them.
- Q48. (B) $5 + 15 + 25 + 10 + 10 = 65$ books.
- Q49. (D) In this sentence 'to burn the midnight oil' means to work late into the night.
- Q50. (D) The minute hand is at 180° from 12 and the hour hand at 135° from 12, so the angle between them is 45° .

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