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SCO INTERNATIONAL OLYMPIAD

CLASS 10 QUESTION PAPER

SCO International Mental Ability Olympiad

Grade 10 reasoning, analytical thinking, table-based inference, and high-level Olympiad problem solving.

- compact question-label format with diagrams inside question blocks
- answer key and explanation included for student learning

Coding	Series	Alphabet	Operations	Puzzles
Calendar	Syllogism	Cubes	Blood Relations	Achievers

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Official Question Paper

Official SCO-branded question paper format with compact question labels, answer key and explanations.

Exam Name	SCO International Mental Ability Olympiad
Class	Class 10
Paper Year	2025-26
Total Questions / Time	51 Questions / 60 Minutes

Guidelines for the Candidate

1. Total Questions: 51 | Time: 1 hour.
2. Before the exam begins, complete the OMR sheet or online candidate details carefully.
3. The paper contains General Reasoning, Data/Table Case Study, Statement/Data Sufficiency and Achievers sections.
4. Every question has one correct answer. Select only one option.
5. Each Achievers Section question carries 2 marks; all other questions carry 1 mark unless stated otherwise.
6. There is no negative marking in this sample format.
7. Calculator use is not allowed unless the official exam screen specifically permits it.
8. All diagrams, tables and passages are part of the question block and must be read before choosing the answer.

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General Reasoning

Q1. In a code language, each letter is replaced by the letter two places ahead of its mirror image in the alphabet. What is the code for LOGIC?

A. QNVTZ
B. PNVTY
C. QNWUY
D. RNVTX

Answer: A

Explanation: Mirror letters of LOGIC are O, L, T, R, X. Moving each two places ahead gives Q, N, V, T, Z.

Q2. Complete the series: 2, 6, 12, 20, ?, 42.

A. 28
B. 30
C. 32
D. 34

Answer: B

Explanation: The differences are 4, 6, 8, 10, 12. Therefore the missing term is 20 + 10 = 30.

Q3. Find the missing letter in the sequence: A, C, F, J, ?, U.

A. O
B. P
C. Q
D. R

Answer: A

Explanation: The alphabet positions increase by 2, 3, 4, 5 and 6. J + 5 = O.

Q4. Define a new operation a @ b = a^2 - b. What is the value of (5 @ 3) @ 2?

A. 480
B. 482
C. 484
D. 486

Answer: B

Explanation: 5 @ 3 = 25 - 3 = 22. Then 22 @ 2 = 22^2 - 2 = 482.

Q5. Two ropes each burn completely in 60 minutes but unevenly. Which method measures exactly 45 minutes?

A. Light rope A at one end and rope B at both ends.
B. Light rope A at both ends and rope B at one end.
C. Light both ropes at one end each.
D. Light both ropes at both ends.

Answer: B

Explanation: Rope A burns in 30 minutes when lit at both ends. Rope B, lit at one end at the start, has 30 minutes of burn left. Lighting its other end then makes it finish in 15 more minutes. Total = 45 minutes.

Q6. If today is Wednesday, what day will it be 45 days from now?

A. Saturday
B. Sunday
C. Monday
D. Tuesday

Answer: A

Explanation: 45 leaves remainder 3 when divided by 7. Wednesday + 3 days = Saturday.

Q7. Arrange the decimals in ascending order: 0.75, 0.57, 0.705, 0.6.

A. 0.57, 0.6, 0.705, 0.75
B. 0.57, 0.705, 0.6, 0.75
C. 0.6, 0.57, 0.705, 0.75
D. 0.57, 0.705, 0.75, 0.6

Answer: A

Explanation: Compare place values: 0.57 < 0.60 < 0.705 < 0.75.

Q8. A train travels 120 km in 2 hours and then 180 km in 3 hours. What is its average speed?

A. 60 km/h
B. 65 km/h
C. 70 km/h
D. 75 km/h

Answer: A

Explanation: Total distance = 300 km and total time = 5 hours. Average speed = 300/5 = 60 km/h.

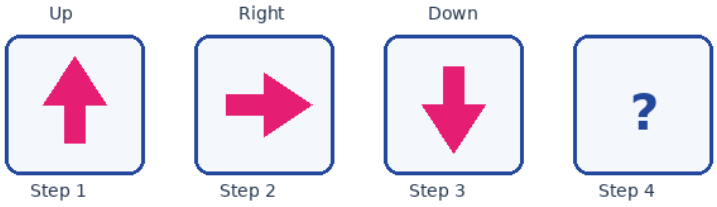
Q9. Statements: All poets are dreamers. No dreamer is an athlete. Conclusions: I. No poet is an athlete. II. Some athletes are not poets. Which follows?

A. Only I follows
B. Only II follows
C. Both I and II follow
D. Neither follows

Answer: A

Explanation: All poets fall inside dreamers, and dreamers have no overlap with athletes. So no poet is an athlete. Conclusion II is not guaranteed.

Q10. A shape rotates 90 degrees clockwise at each step. If the first shape is an upward arrow, what is the direction of the fourth shape?



A. Right
B. Down
C. Left
D. Up

Answer: C

Explanation: The sequence is Up, Right, Down, Left. Therefore the fourth shape points Left.

Q11. Leader, Chief, Commander, Follower. Which term does not belong?

A. Leader
B. Chief
C. Commander
D. Follower

Answer: D

Explanation: Leader, Chief and Commander denote authority. Follower denotes someone who is led.

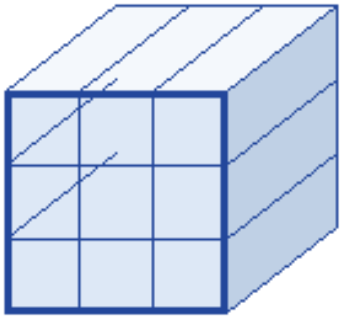
Q12. Pointing to a photograph, a man says, "This is my mother's husband's only son." Who is in the photograph?

A. The man's father
B. The man himself
C. The man's brother
D. The man's uncle

Answer: B

Explanation: His mother's husband is his father. The father's only son is the man himself.

Q13. A cube of side 3 cm is painted red on all faces and cut into 27 equal small cubes. How many small cubes have exactly one painted face?



Painted 3 x 3 x 3 cube

A. 6
B. 12
C. 18
D. 24

Answer: A

Explanation: In a 3 x 3 x 3 cube, the centre cube on each face has exactly one painted face. There are 6 such cubes.

Q14. Every student in the Math Olympiad is brilliant. John is brilliant. Therefore, John is a Math Olympiad student. What is the flaw?

A. Affirming the consequent
B. Denying the antecedent
C. Equivocation
D. No logical error

Answer: A

Explanation: The argument assumes the converse. From P implies Q and Q, it wrongly concludes P.

Q15. Is x greater than 5? Statement 1: $2x > 10$. Statement 2: $x + 3 > 8$. Which is correct?

A. Statement 1 alone is sufficient, but 2 is not.
B. Statement 2 alone is sufficient, but 1 is not.
C. Both together are sufficient, but neither alone is.
D. Each statement alone is sufficient.

Answer: D

Explanation: Statement 1 gives $x > 5$. Statement 2 also gives $x > 5$. Each statement alone is sufficient.

Q16. Which analogy is correctly matched?

A. Book : Reading :: Knife : Writing
B. Pen : Write :: Brush : Paint
C. Car : Road :: Boat : Track
D. Teacher : Student :: Doctor : Disease

Answer: B

Explanation: A pen is used to write; a brush is used to paint.

Q17. Five students A, B, C, D and E stand in a line. A is not at either end; B is left of C; D is immediately right of E; C is at extreme right. Which order works?

A. E, D, B, A, C
B. B, E, D, A, C
C. A, E, D, B, C
D. E, A, B, D, C

Answer: B

Explanation: B, E, D, A, C satisfies all clues: C is rightmost, A is not at an end, B is left of C, and D is immediately right of E.

Q18. A farmer has chickens and cows. There are 30 heads and 94 legs. How many chickens are there?

A. 11
B. 12
C. 13
D. 14

Answer: C

Explanation: Let chickens be x and cows be y. $x+y=30$ and $2x+4y=94$. Dividing the second by 2 gives $x+2y=47$. Thus $y=17$ and $x=13$.

Q19. The sum of three consecutive even numbers is 84. What is the smallest number?

A. 26
B. 26.5
C. 28
D. 24

Answer: A

Explanation: Let the numbers be x, x+2 and x+4. Then 3x+6=84, so x=26.

Q20. A square is rotated 45 degrees clockwise at each step. If the first square is at 0 degrees, what is the orientation of the fourth square?

A. 135 degrees
B. 90 degrees
C. 45 degrees
D. 180 degrees

Answer: A

Explanation: The orientations are 0, 45, 90 and 135 degrees.

Data/Table Case Study

Q21. A letter-to-number table assigns A=3, B=5, C=7, D=11, E=13. A word is coded by summing its letter values. What is the code for BAD?

A. 17
B. 19
C. 21
D. 23

Answer: B

Explanation: B + A + D = 5 + 3 + 11 = 19.

Q22. The first four values of a sequence are 2, 5, 10, 17. The differences are 3, 5, 7, ... What is the fifth value?

A. 26
B. 28
C. 30
D. 32

Answer: A

Explanation: The next difference is 9, so the fifth value is 17 + 9 = 26.

Q23. Using vowel positions A=1, E=5, I=9, O=15, U=21, what is the sum of the vowel positions in EDUCATION?

A. 49
B. 51
C. 53
D. 55

Answer: B

Explanation: EDUCATION contains E, U, A, I and O. Sum = 5 + 21 + 1 + 9 + 15 = 51.

Q24. A new operation is defined as x # y = (x + y)^2 - xy. What is 4 # 5?

A. 59
B. 60
C. 61
D. 64

Answer: C

Explanation: (4+5)^2 - 4x5 = 81 - 20 = 61.

Q25. A farmer has only chickens and dogs. There are 20 animals and 54 legs. How many chickens are there?

A. 11
B. 12
C. 13
D. 14

Answer: C

Explanation: Let chickens = x, dogs = y. x+y=20 and 2x+4y=54. Subtract 2x+2y=40 from the leg equation: 2y=14, y=7, x=13.

Q26. School periods last 45 minutes, with 10-minute breaks. Period 1 is 9:00-9:45, Period 2 is 9:55-10:40, Period 3 is 10:50-11:35. When is Period 4?

A. 11:35 AM to 12:20 PM
B. 11:40 AM to 12:25 PM
C. 11:45 AM to 12:30 PM
D. 11:50 AM to 12:35 PM

Answer: C

Explanation: Period 3 ends at 11:35. After a 10-minute break, Period 4 starts at 11:45 and ends at 12:30.

Q27. Scores are A=78, B=85, C=92, D=88, E=80. What is the median score?

A. 78
B. 80
C. 85
D. 88

Answer: C

Explanation: Ascending scores are 78, 80, 85, 88, 92. The middle score is 85.

Q28. Daily sales are 150, 200, 250, ?. If the increase is constant, what is Day 4 sales?

A. 280
B. 290
C. 300
D. 310

Answer: C

Explanation: The increase is 50 each day, so Day 4 sales = 250 + 50 = 300.

Q29. Two numbers X and Y have X + Y = 30 and X - Y = 10. Is X greater than Y?

A. Yes
B. No
C. Insufficient data
D. Cannot determine

Answer: A

Explanation: Adding the two equations gives 2X=40, so X=20 and Y=10. Hence X is greater than Y.

Q30. A table says Arjun and Riya are managers, and Sameer is an employee who prepares reports. Which conclusion is directly supported? I. Some managers do not approve funds. II. Some employees prepare reports. III. Sameer prepares reports.

A. Only I
B. Only II and III
C. Only I and II
D. All three

Answer: B

Explanation: The table directly supports that an employee prepares reports and Sameer prepares reports. It does not prove that a manager cannot approve funds unless explicitly stated.

Statement and Data Sufficiency

Q31. Three distinct positive integers a < b < c have sum 60. Statement 1: c - a > 20. Statement 2: b > 15. Is c > 30?

A. Statement 1 alone is sufficient.
B. Statement 2 alone is sufficient.
C. Both together are sufficient, neither alone is.
D. Even both together are not sufficient.

Answer: C

Explanation: Each statement alone allows more than one possibility. Together, if c <= 30, then a < 10 while b > 15; the values cannot reach a total of 60 with a < b < c <= 30. Hence c > 30.

Q32. A coding matrix uses the values shown in the diagram. Which code represents MOST?

0	1	2	3
M=14	O=20	S=22	T=89
R=42	A=32	D=79	E=58
F=31	L=13	I=44	P=76

Coding matrix sample

A. 14, 20, 22, 89
B. 33, 20, 11, 79
C. 21, 00, 03, 88
D. 02, 13, 34, 56

Answer: A

Explanation: From the matrix, M=14, O=20, S=22 and T=89. So MOST = 14, 20, 22, 89.

Q33. The rotation angles of five squares are 15, 45, 90, 150, ?. The increments are increasing by 15 degrees each time. What is the fifth angle?

A. 210 degrees
B. 225 degrees
C. 240 degrees
D. 255 degrees

Answer: B

Explanation: The increments are 30, 45, 60, so the next increment is 75. Fifth angle = 150 + 75 = 225 degrees.

Q34. Race times are A=12.345, B=12.354, C=12.348, D=12.347, E=12.350, F=12.349, G=12.346. Who has the fourth fastest time?

A. R
B. T
C. C
D. Q

Answer: C

Explanation: Ascending times are A 12.345, G 12.346, D 12.347, C 12.348, F 12.349, E 12.350, B 12.354. The fourth fastest is C.

Q35. If N + 4 = 20, what is the value of 2N - 3?

A. 28
B. 29
C. 30
D. 31

Answer: B

Explanation: N = 16. Therefore 2N - 3 = 32 - 3 = 29.

Q36. February 1, 2024 was a Thursday. In a leap year, what day was May 15, 2024?

A. Monday
B. Tuesday
C. Wednesday
D. Thursday

Answer: C

Explanation: From Feb 1 to May 15 is 104 days. 104 mod 7 = 6. Thursday + 6 days = Wednesday.

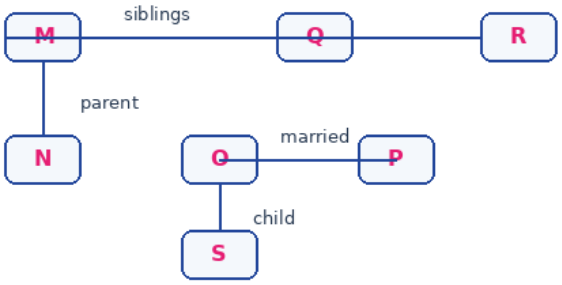
Q37. A sequence starts with A (position 1) and adds prime numbers 2, 3, 5, 7. What letter corresponds to the final position?

A. P
B. Q
C. R
D. S

Answer: C

Explanation: 1+2=3 (C), +3=6 (F), +5=11 (K), +7=18. The 18th letter is R.

Q38. Using the family diagram, if P is Y's mother, R is P's sister, and S is R's daughter, what is S to Y?



A. Sister
B. Cousin
C. Aunt
D. Niece

Answer: B

Explanation: R is Y's maternal aunt. R's daughter S is therefore Y's cousin.

Q39. Five students J, K, L, M and N are ranked shortest to tallest. J is not shortest and is shorter than K; K is immediately shorter than N; M is tallest; L is shorter than N. Which order works?

A. L, J, K, N, M
B. J, L, K, N, M
C. L, K, J, N, M
D. L, K, N, J, M

Answer: A

Explanation: L, J, K, N, M satisfies all clues: J is not shortest and shorter than K, K is immediately before N, M is tallest, and L is shorter than N.

Q40. M is mother of N. N is sister of O. O is wife of P. Q is brother of M. R is wife of Q. S is daughter of O and P. What is R to S?

A. Maternal aunt
B. Aunt by marriage
C. Cousin
D. Sister-in-law

Answer: B

Explanation: Q is the brother of S's grandmother M, and R is Q's wife. So R is an aunt by marriage in the extended family.

Achievers Section

Q41. January 1, 2024 was Monday. What day of the week was July 15, 2024?

A. Monday
B. Tuesday
C. Wednesday
D. Thursday

Answer: A

Explanation: July 15 is 196 days after January 1 in 2024. Since 196 is exactly 28 weeks, the weekday remains Monday.

Q42. A letter sequence uses positions A=1, B=2, ..., Z=26. It begins A, D, H, M. The differences increase by 1 each time: 3, 4, 5, ... What is the next letter?

A. R
B. S
C. T
D. U

Answer: B

Explanation: A=1, D=4, H=8, M=13. The next difference is 6, giving 19, which is S.

Q43. K is the sister of L. L is father of M. N is wife of L. O is sister of P. P is husband of K. Q is daughter of K and P. What is O to Q?

A. Maternal aunt
B. Paternal aunt
C. Cousin
D. Sister-in-law

Answer: B

Explanation: P is Q's father. O is P's sister, so O is Q's paternal aunt.

Q44. Five finishing times are 10.127, 10.123, 10.129, 10.121 and 10.125 seconds. What is the median time?

A. 10.123 s
B. 10.125 s
C. 10.127 s
D. 10.129 s

Answer: B

Explanation: Ascending order is 10.121, 10.123, 10.125, 10.127, 10.129. The median is 10.125 s.

Q45. Six students C, E, D, A, B, F are placed in increasing height. Which condition is NOT violated: C shortest, F tallest, D immediately taller than E, B taller than D, A in a middle position?

A. C, E, D, A, B, F
B. C, E, A, D, B, F
C. C, A, E, D, B, F
D. C, D, E, A, B, F

Answer: A

Explanation: Option A gives C first, F last, E immediately followed by D, B after D and A in the 4th position.

Q46. February 29, 2000 was Tuesday. What day of the week was July 15, 2000?

A. Sunday
B. Tuesday
C. Thursday
D. Saturday

Answer: D

Explanation: The number of days from Feb 29 to July 15 is 137. 137 mod 7 = 4. Tuesday + 4 days = Saturday.

Q47. A sequence starts with B and adds increasing odd numbers 3, 5, 7, 9 to alphabet positions. What is the fifth letter?

A. Y
B. Z
C. A
D. X

Answer: B

Explanation: B is 2. Positions: 2+3=5 (E), +5=10 (J), +7=17 (Q), +9=26 (Z).

Q48. T is mother of U. V is brother of T. W is daughter of U. X is wife of V. Y is son of X. Z is sister of W. What is Y to Z?

A. First cousin once removed
B. Second cousin
C. Half-sibling
D. No relation

Answer: A

Explanation: V is U's uncle. Y is V's son, so Y is U's cousin. Z is U's child, making Y first cousin once removed to Z.

Q49. Six people P, Q, R, S, T and U are ordered from least to most intelligent. P is not least; Q is immediately higher than R; S is higher than T but lower than U; R is not most; T is not least. Which order works?

A. R, Q, T, S, P, U
B. T, R, Q, P, S, U
C. R, Q, P, T, S, U
D. R, Q, T, P, S, U

Answer: A

Explanation: R, Q, T, S, P, U satisfies Q immediately above R, S above T but below U, P not least and T not least.

Q50. At 3:30, what is the smaller angle between the hour and minute hands of a clock?

Clock reasoning

A. 60 degrees
B. 75 degrees
C. 90 degrees
D. 105 degrees

Answer: B

Explanation: At 3:30, the minute hand is at 180 degrees and the hour hand is at 105 degrees from 12. Difference = 75 degrees.

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Answer Key

Q No.	Ans.	Q No.	Ans.	Q No.	Ans.	Q No.	Ans.	Q No.	Ans.
1	A	2	B	3	A	4	B	5	B
6	A	7	A	8	A	9	A	10	C
11	D	12	B	13	A	14	A	15	D
16	B	17	B	18	C	19	A	20	A
21	B	22	A	23	B	24	C	25	C
26	C	27	C	28	C	29	A	30	B
31	C	32	A	33	B	34	C	35	B
36	C	37	C	38	B	39	A	40	B
41	A	42	B	43	B	44	B	45	A
46	D	47	B	48	A	49	A	50	B