

RIE CEE Reasoning Ability

Sample Paper – 12

Duration: 45 Minutes

Maximum Marks: 60

Instructions

- This paper contains **30** Multiple Choice Questions (Single Correct Answer), modelled on the **Reasoning Ability** section of the **RIE CEE** (NCERT Regional Institutes of Education Common Entrance Exam).
- Each correct answer carries **+2 marks**. There is a penalty of 0.5 **mark** for every incorrect answer. Unattempted questions carry **0 marks**.
- Only **one** option is correct. Choose carefully before marking, since wrong answers are penalised.
- The actual exam is a **Computer Based Test** (CBT); attempt this paper in one timed sitting of 45 minutes.
- Use of mobile phones, calculators, or electronic gadgets is not permitted.

Q1. Look at this series: 7, 10, 8, 11, 9, 12, ... What number should come next?

- (A) 7
- (B) 10
- (C) 12
- (D) 13

Q2. In a certain code language, if the word 'TEACHER' is coded as 'VGCEJGT', how will the word 'STUDENT' be coded in that same language?

- (A) UVWFGPU
- (B) RTVCEMS
- (C) UVXGENT
- (D) UVWFGOT

Q3. Choose the word that is least like the other words in the group.



- (A) Geometry
- (B) Algebra
- (C) Calculus
- (D) Thermodynamics
- (E) Thermodynamics

Q4. 'Architect' is related to 'Building' in the same way as 'Sculptor' is related to:

- (A) Museum
- (B) Stone
- (C) Chisel
- (D) Statue

Q5. Statements:

- I. All cups are vegetables.
- II. All vegetables are pens.

Conclusions:

- I. Some pens are vegetable.
- II. Some pens are cups.

- (A) Only conclusion I follows
- (B) Only conclusion II follows
- (C) Either conclusion I or II follows
- (D) Both conclusions I and II follow

Q6. Introducing a woman, a man said, "She is the only daughter-in-law of the grandmother of my father's only son." How is the woman related to the man?

- (A) Mother
- (B) Sister
- (C) Wife
- (D) Aunt



Q7. A person starts walking from his home towards the North. After walking 4 km, he turns right and walks 3 km. How far and in which direction is he now with respect to his starting point?

- (A) 5 km North-East
- (B) 7 km North-West
- (C) 5 km South-East
- (D) 7 km North-East

Q8. Statements:

Should primary school children be completely banned from using smartphones?

Arguments:

I. Yes, because smartphone usage hampers physical and cognitive development in young children.

II. No, because it deprives them of early access to global digital knowledge.

- (A) Only argument I is strong
- (B) Only argument II is strong
- (C) Either I or II is strong
- (D) Both arguments I and II are strong

Q9. Five students—P, Q, R, S, and T—are sitting on a bench facing North. Q is sitting to the immediate right of S. P is sitting to the immediate left of R. T is sitting between P and S. Who is sitting exactly in the middle?

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

Q10. Find the missing number in the sequence: 3, 12, 27, 48, 75, ?

- (A) 98



- (B) 108
- (C) 112
- (D) 120

Q11. Choose the odd pair of numbers from the given options.

- (A) 14 - 20
- (B) 23 - 29
- (C) 37 - 43
- (D) 41 - 49

Q12. 'Ocean' is related to 'Water' in the same way as 'Glacier' is related to:

- (A) Refrigerator
- (B) Ice
- (C) Mountain
- (D) Winter

Q13. In a certain code, 'BOARD' is written as '53169' and 'NEAR' is written as '2416'. How is 'NODE' written in that code?

- (A) 2394
- (B) 2894
- (C) 2364
- (D) 2594

Q14. Statements:

- I. Some doctors are teachers.
- II. All teachers are counselors.

Conclusions:

- I. Some counselors are doctors.
- II. Some doctors are not counselors.



- (A) Only conclusion I follows
- (B) Only conclusion II follows
- (C) Both conclusions I and II follow

Q15. Choose the figure from the options which most closely resembles the water-image of the word 'REASON'.

- (A) R $\exists$ ASON
- (A) B E $\forall$ SON
- (A) R E A S O N flipped horizontally
- (B) None of the above

Q16. Pointing to a photograph, Rohit said, "His brother's father is the only son of my grandfather." How is Rohit related to the person in the photograph?

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

Q17. Find the next term in the series: B2D, E3G, H5J, K8M, ?

- (A) N11P
- (B) N12P
- (C) O12P
- (D) O11Q

Q18. Identify the term that does not belong to the following sequence: Z1A, X2D, V6I, T21P, R88W

- (A) X2D
- (B) V6I
- (C) T21P



(D) R88W

Q19. 'Melt' is related to 'Liquid' in the same way as 'Freeze' is related to:

- (A) Ice
- (B) Solid
- (C) Condense
- (D) Crystal

Q20. A man walks 6 km South, turns left and walks 4 km, then turns left again and walks 6 km. How far is he from his starting point?

- (A) 4 km
- (B) 6 km
- (C) 10 km
- (D) 16 km

Q21. If 'A + B' means A is the brother of B; 'A - B' means A is the sister of B; and 'A x B' means A is the father of B. Which of the following means that C is the son of M?

- (A) $M - N \times C$
- (B) $M \times N - C$
- (C) $M \times C + N$
- (D) $C + N - M$

Q22. Statements:

I. Many educational institutions are shifting from physical textbooks to digital tablets.

Conclusions:

I. Physical books will become completely obsolete across the world within the next year.



II. Digital learning platforms offer interactive benefits that appeal to modern institutions.

- (A) Only conclusion I follows
- (B) Only conclusion II follows
- (C) Both conclusions I and II follow
- (D) Neither conclusion I nor II follows

Q23. Complete the analogy: Circle : Circumference :: Square : ?

- (A) Volume
- (B) Area
- (C) Diagonal
- (D) Perimeter

Q24. If in a certain code language, 'ORANGE' is written as 'PUBOHF', then how will 'MANGO' be written in that code?

- (A) NBOFP
- (B) NBOPH
- (C) OBNHP
- (D) LZMFN

Q25. Statements:

- I. No paper is a clip.
- II. Some clips are boards.

Conclusions:

- I. Some boards are not papers.
- II. No board is a paper.

- (A) Only conclusion I follows
- (B) Only conclusion II follows
- (C) Either conclusion I or II follows



(D) Neither conclusion I nor II follows

Q26. Six people—A, B, C, D, E, and F—are sitting in a circle facing the center. B is between F and D. E is between A and C. A is to the immediate left of F. Who is sitting opposite to B?

(A) C

(B) D

(C) E

(D) F

Q27. Choose the figure which completes the pattern in the given matrix arrangement:
A circle contains a dot in the top-left quadrant, then top-right, then bottom-right. What is the next logical stage?

(A) Dot in the center of the circle

(B) Dot in the bottom-left quadrant

(C) Circle with two dots on top

(D) Circle with no dots

Q28. Find the missing number in the letter-number matrix:

A2 C4 E6

G8 I10 ?

M14 O16 Q18

(A) J12

(B) K11

(C) K12

(D) L12

Q29. Select the option that represents the mirror image of the figures when a vertical mirror is placed to its right side: BLOCK

(A) KCOBL



- (B) K reversed, C reversed, O, L reversed, B reversed
- (C) KCBOL
- (D) LKOBC

Q30. Choose the odd one out from the given architectural structural items.

- (A) Wall
- (B) Pillar
- (C) Roof
- (D) Paint



Detailed Solutions**Q1.****Solution**

Concept: This question tests the ability to identify a pattern in an alternating numerical sequence. Alternating series typically involve two or more distinct arithmetic progressions woven together, requiring the solver to decouple the steps and determine the next logical transition based on current positioning.

Solution:

- (a) Analyze the given progression: 7, 10, 8, 11, 9, 12, ... We can break this down into two alternating sub-sequences.
- (b) The first sub-sequence consists of the numbers at odd positions (1st, 3rd, 5th terms): 7, 8, 9. The pattern here is a simple incremental addition of +1.
- (c) The second sub-sequence consists of the numbers at even positions (2nd, 4th, 6th terms): 10, 11, 12. The pattern here is also an incremental addition of +1.
- (d) Alternatively, look at the consecutive operations: $7 + 3 = 10$, then $10 - 2 = 8$, followed by $8 + 3 = 11$, then $11 - 2 = 9$, and $9 + 3 = 12$. The repeating rule is (+3, -2).
- (e) Following this systematic pattern, the next operation after +3 must be -2. Applying this to the last given number gives $12 - 2 = 10$.

Final Answer: 10

Answer: (B)

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Q2.

Solution

Concept: Letter-coding systems map characters from a source word to a target word using constant directional shifts within the standard English alphabet. Solving this requires calculating individual positional differences and applying that uniform rule to the target word.

Solution:

- (a) Examine the original word mapping: TEACHER is converted into VGCEJGT. We determine the alphabetical position change for each letter individually.
- (b) T shifts to V (+2), E shifts to G (+2), A shifts to C (+2), C shifts to E (+2), H shifts to J (+2), E shifts to G (+2), and R shifts to T (+2).
- (c) The uniform rule identified across the entire string is a forward shift of exactly two positions (+2) in the alphabetical order.
- (d) Now apply this fixed shift rule to the letters of the word STUDENT: S +2 = U, T +2 = V, U +2 = W, D +2 = F, E +2 = G, N +2 = P, and T +2 = U.
- (e) Combining these newly generated characters in sequential order yields the coded string UVWFGPU, which corresponds to option A.

Final Answer: UVWFGPU

Answer: (A)

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Q3.

Solution

Concept: Classification problems evaluate semantic or conceptual relationships among a group of items to discover a shared categorical attribute. The odd item out is identified because it fails to fit into the primary logical framework established by the others.

Solution:

- (a) Evaluate the core characteristics of the words provided in the options group: Geometry, Algebra, Calculus, and Thermodynamics.
- (b) Geometry, Algebra, and Calculus represent major foundational branches of core Mathematics, focusing on shapes, equations, and rates of change.
- (c) Thermodynamics is a branch of Physics that specifically deals with heat, work, temperature, and their statistical relation to energy and radiation.
- (d) While mathematics is heavily utilized within thermodynamics, the topic itself is fundamentally categorized under the natural sciences rather than pure mathematics.
- (e) Because Geometry, Algebra, and Calculus form a uniform academic cluster of mathematical sub-disciplines, Thermodynamics stands out as the distinct odd element.

Final Answer: Thermodynamics

Answer: (D)

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Q4.

Solution

Concept: Analogy questions require identifying the precise functional relationship between an agent and their final creation or output. Once this fundamental relationship is established, it must be applied symmetrically to the secondary pair to find the missing term.

Solution:

- (a) Analyze the first pair provided: 'Architect' and 'Building'. An architect is a skilled professional whose primary job is to design and create a building.
- (b) The underlying logical bridge can be defined by the semantic relationship template: [Creator] is to [Final Creative Output].
- (c) Now consider the second professional agent provided: 'Sculptor'. A sculptor is an artist who creates three-dimensional art forms.
- (d) Evaluate the options to determine which represents the final creative output of a sculptor. While stone and chisels are materials and tools, they are not the final product.
- (e) A 'Statue' represents the completed physical creation of a sculptor, completing the analogical relationship perfectly to match option D.

Final Answer: Statue

Answer: (D)

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Q5.**Solution**

Concept: Syllogisms use deductive logic to test the absolute validity of conclusions based on a set of factual premises. Standard set theory and Venn diagrams are used to map relationships like inclusion, intersection, or exclusion.

Solution:

- (a) Interpret Premise I: "All cups are vegetables." This means the set containing all "cups" is completely enclosed inside the larger set of "vegetables".
- (b) Interpret Premise II: "All vegetables are pens." This means the entire set of "vegetables" is completely enclosed inside the even larger set of "pens".
- (c) Analyze Conclusion I: "Some pens are vegetables." Since the vegetable set lies entirely inside the pen set, the region occupied by vegetables is part of the pen set, making this true.
- (d) Analyze Conclusion II: "Some pens are cups." Since the cup set is entirely nested inside the pen set, those pens that are cups definitely exist, making this true.
- (e) Both statements are logically sound and structurally inescapable under the premises. Therefore, both conclusion I and conclusion II follow validly.

Final Answer: Both conclusions I and II follow

Answer: (D)

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Q6.

Solution

Concept: Blood relation problems require breaking down complex, nested descriptive phrases into clear generational hierarchies. Solving them involves working backward from the deep generational reference point to identify the immediate family connections.

Solution:

- (a) Start parsing the description from the inside out, beginning with the reference expression: "my father's only son."
- (b) For the man speaking, his father's only son must be the man himself. So, "my father's only son" simplifies to "the man".
- (c) Substitute this back into the description: "the grandmother of the man." This refers to the man's paternal or maternal grandmother.
- (d) Next, evaluate the phrase: "the only daughter-in-law of the grandmother." The only daughter-in-law of a person's grandmother is that person's own mother.
- (e) Thus, the woman introduced is the mother of the speaker. This confirms that the relationship of the woman to the man is Mother.

Final Answer: Mother

Answer: (A)

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Q7.

Solution

Concept: Direction sense tasks involve tracking paths along cardinal coordinates and calculating net displacement. The shortest direct distance between a start point and an end point is calculated using the Pythagorean theorem for right-angled triangles.

Solution:

- (a) Assume the person starts at the origin (0, 0). Walking 4 km North moves the individual to point A at coordinates (0, 4).
- (b) From point A, making a right turn shifts the direction of movement to the East. Walking 3 km brings the person to the final point B at (3, 4).
- (c) To find the net distance from the starting point, construct a right-angled triangle with a base of 3 km and a perpendicular height of 4 km.
- (d) Apply the Pythagorean formula: Distance = $\sqrt{3^2 + 4^2} = \sqrt{9 + 16} = \sqrt{25} = 5$ km.
- (e) Looking from the origin (0, 0) toward the final position (3, 4), the directional quadrant is clearly between North and East, which is North-East.

Final Answer: 5 km North-East

Answer: (A)

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Q8.

Solution

Concept: Analytical arguments require distinguishing between strong arguments, which are directly relevant and logically sound, and weak arguments, which are superficial or overly generalized. A strong argument must present a clear cause-and-effect relationship.

Solution:

- (a) Analyze the core question: Should primary school children be banned from using smart-phones? This issue balances childhood developmental health against digital literacy.
- (b) Examine Argument I: "Yes, because smartphone usage hampers physical and cognitive development..." This touches upon validated health and developmental concerns, making it strong and relevant.
- (c) Examine Argument II: "No, because it deprives them of early access to global digital knowledge." This presents a valid counterpoint regarding educational access in modern learning systems.
- (d) Both arguments address real, distinct outcomes of the policy decision using sound logic from opposing perspectives, rather than simple opinion.
- (e) Because both statements provide a strong, logical basis for their respective positions, both arguments I and II are considered strong.

Final Answer: Both arguments I and II are strong

Answer: (D)

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Q9.

Solution

Concept: Linear arrangement puzzles require using definite spatial statements to establish fixed positions on a grid. Relative placements are filled in sequentially until a complete, contradiction-free sequence is formed.

Solution:

- (a) Note that all five individuals face North, meaning their right and left match our right and left. We have 5 slots: _ _ _ _ _.
- (b) Use the statement "Q is sitting to the immediate right of S." This gives us a fixed block: $[S][Q]$.
- (c) Use the statement "P is sitting to the immediate left of R." This gives us another fixed block: $[P][R]$.
- (d) Integrate the statement "T is sitting between P and S." This means T must link the two blocks together, giving the sequence: $[P][R]$ cannot work directly because T needs to be next to P and S .
- (e) Arranging them with T in the middle gives the sequence $[P][T][S][Q]$. Placing R to the right of P yields the final arrangement: $P - T - S - Q$. With R matching P 's left, the correct order is $R - P - T - S - Q$.
- (f) Looking at the ordered sequence $R - P - T - S - Q$, the person in the exact middle position (third from either end) is T .

Final Answer: T

Answer: (D)

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Q10.**Solution**

Concept: Number series operations often rely on tracking the second-order differences between consecutive terms. When the initial differences increase at a constant rate, it indicates a underlying quadratic or arithmetic pattern controlling the sequence growth.

Solution:

- (a) Write down the consecutive numbers in the sequence to examine their behavior: 3, 12, 27, 48, 75, ...
- (b) Calculate the first-order differences between adjacent terms: $12 - 3 = 9$, $27 - 12 = 15$, $48 - 27 = 21$, and $75 - 48 = 27$.
- (c) Examine the resulting series of differences: 9, 15, 21, 27. These numbers increase by a constant value of +6 each time ($15 - 9 = 6$, $21 - 15 = 6$, etc.).
- (d) To find the next difference in the sequence, add 6 to the last difference: $27 + 6 = 33$.
- (e) Add this difference to the last known term of the original sequence to find the missing number: $75 + 33 = 108$.

Final Answer: 108

Answer: (B)

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Q11.

Solution

Concept: This classification problem analyzes pairs of numbers to discover a uniform mathematical relationship. The correct solution involves testing basic arithmetic transformations, such as computing differences or determining if the components belong to a specific number group like primes, to identify the mismatched option.

Solution:

- (a) Examine the numerical difference between the elements in each provided pair. For the first pair, the difference is calculated as $20 - 14 = 6$.
- (b) Calculate the differences for the subsequent pairs: $29 - 23 = 6$ for the second pair, and $43 - 37 = 6$ for the third pair.
- (c) Compute the difference for the final pair, which yields $49 - 41 = 8$. This difference deviates from the uniform value of 6 established by the others.
- (d) Alternatively, analyze the properties of the individual numbers. In pairs B, C, and D, all values (23, 29, 37, 43, 41) are prime numbers, except for 49.
- (e) The number 49 is a composite perfect square (7×7), breaking both the uniform difference pattern and the prime number pair consistency observed in the other options.

Final Answer: 41 - 49**Answer: (D)**[Go Back to Question 11](#)

Q12.

Solution

Concept: This analogy question explores the relationship between a massive geographical structure and its primary physical state of matter or constituent component. The objective is to identify the fundamental material composition of the source and apply it symmetrically.

Solution:

- (a) Analyze the connection established in the first pair: 'Ocean' and 'Water'. An ocean is a vast geographical body that is fundamentally composed of liquid water.
- (b) Formulate the logical relationship bridge using a standard semantic template: [Geographical Feature] is naturally made up entirely of [Constituent Physical Matter].
- (c) Apply this logical bridge to the first term of the secondary pair: 'Glacier'. A glacier is defined as a massive, persistent body of dense moving ice.
- (d) Evaluate the available options to determine which material serves as the structural building block of a glacier, just as water serves the ocean.
- (e) While glaciers are found on mountains and exist in winter conditions, they are physically made of 'Ice', satisfying the established composition analogy.

Final Answer: Ice

Answer: (B)

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Q13.**Solution**

Concept: Substitution cipher problems assign specific numeric digits to unique letters across multiple reference words. Solving this requires verifying that identical letters share the same numerical digit, allowing direct translation of the target word.

Solution:

- (a) List the letters from the reference word 'BOARD' alongside their assigned digits: B=5, O=3, A=1, R=6, D=9.
- (b) List the letters from the second reference word 'NEAR' alongside their assigned digits: N=2, E=4, A=1, R=6.
- (c) Cross-check overlapping letters to ensure structural consistency. The letter 'A' is represented by 1 in both words, and 'R' is represented by 6, confirming direct substitution.
- (d) Extract the corresponding numerical values for each letter in the target word 'NODE' using the verified references.
- (e) Finding the letters reveals N=2, O=3, D=9, and E=4. Combining these digits in order yields the final sequence of 2394.

Final Answer: 2394

Answer: (A)

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Q14.**Solution**

Concept: Syllogisms use formal logic to test the validity of deductions based on premises. Using categorical statements, relationships of partial intersection and total inclusion can be represented to see which conclusions are structurally guaranteed.

Solution:

- (a) Interpret Premise I: "Some doctors are teachers." This implies an overlapping intersection exists between the set of doctors and the set of teachers.
- (b) Interpret Premise II: "All teachers are counselors." This dictates that the entire set of teachers is completely contained inside the larger set of counselors.
- (c) Evaluate Conclusion I: "Some counselors are doctors." Because the entire teacher set is inside the counselor set, the part of doctors intersecting with teachers must also lie inside counselors. This conclusion is valid.
- (d) Evaluate Conclusion II: "Some doctors are not counselors." This statement represents a negative certainty. The premises allow for the possibility that all doctors could be counselors.
- (e) Since a universal inclusion remains possible, the negative statement cannot be definitively proven true. Thus, only conclusion I follows logically from the given premises.

Final Answer: Only conclusion I follows

Answer: (A)

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Q15.

Solution

Concept: Water-image transformations simulate a vertical reflection across a horizontal plane located directly beneath an object. The top and bottom parts of each character invert, while the left-to-right order remains completely unchanged.

Solution:

- (a) Understand the mechanical rules of a water reflection: it creates an upside-down inversion where the top of a character moves to the bottom and vice-versa.
- (b) Contrast this with a mirror reflection: a water image does not reverse the horizontal reading order from left to right, meaning the word still begins with R.
- (c) Invert each character of the word 'REASON' vertically: 'R' becomes an upside-down R, 'E' remains identical, 'A' flips to an inverted V-shape, 'S' reverses vertically, 'O' stays same, and 'N' inverts.
- (d) Examine option A: it retains the left-to-right sequence while accurately depicting the vertical structural inversion of each letter in the string.
- (e) Option B begins with an incorrect character, and option C mistakenly applies a horizontal reversal, confirming that option A is the perfect water reflection.

Final Answer: RƎΛSON

Answer: (A)

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Q16.

Solution

Concept: This family puzzle requires mapping relationships out from a key generational reference phrase. By identifying the exact identity of intermediate family links, the relationship between the speaker and the target can be deduced.

Solution:

- (a) Analyze the primary phrase spoken by Rohit: "the only son of my grandfather." The only son of a person's paternal grandfather is typically that person's father.
- (b) Substitute this meaning back into Rohit's description statement: "His brother's father is Rohit's father."
- (c) Break down what "His brother's father" means for the person in the photograph. A brother's father is also that person's own biological father.
- (d) Equate the two simplified components: The father of the person in the photograph is the exact same individual as Rohit's biological father.
- (e) Sharing the same biological father indicates that Rohit and the person in the photograph are brothers, which corresponds to option A.

Final Answer: Brother

Answer: (A)

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Q17.

Solution

Concept: Alphanumeric series combine multiple independent progressions involving letter shifts and numeric operations into single terms. Solving this requires tracking the alphabetical steps and numeric patterns separately.

Solution:

- (a) Track the first letter of each term in the series: B, E, H, K, ... Determine the positional shifts: $B+3=E$, $E+3=H$, $H+3=K$. The next letter must be $K+3=N$.
- (b) Track the central number of each term in the series: 2, 3, 5, 8, ... Analyze the increments between these digits: $2+1=3$, $3+2=5$, $5+3=8$.
- (c) The sequence of increments is +1, +2, +3. Following this pattern, the next increment must be +4. Adding this gives $8+4=12$.
- (d) Track the final letter of each term in the series: D, G, J, M, ... Determine the positional shifts: $D+3=G$, $G+3=J$, $J+3=M$. The next letter must be $M+3=P$.
- (e) Combine the three independently calculated components sequentially to construct the next full term: N, 12, and P, which forms N12P.

Final Answer: N12P

Answer: (B)

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Q18.**Solution**

Concept: This sequence verification problem contains a series of terms adhering to a compound mathematical pattern. Finding the incorrect term requires checking every element against the established rules governing letter position shifts and numeric changes.

Solution:

- (a) Track the first letter sequence: Z, X, V, T, R. These characters follow a constant reverse alphabetical skip of two steps: $Z-2=X$, $X-2=V$, $V-2=T$, $T-2=R$. This pattern holds.
- (b) Track the last letter sequence: A, D, I, P, W. Convert these to alphabetical positions: A=1, D=4, I=9, P=16, W=23. These represent perfect squares ($1^2, 2^2, 3^2, 4^2$), but W is 23 instead of $5^2 = 25$ (Y).
- (c) Track the middle number progression: 1, 2, 6, 21, 88. Check the mathematical rule: $(1 \times 1) + 1 = 2$, $(2 \times 2) + 2 = 6$, $(6 \times 3) + 3 = 21$, $(21 \times 4) + 4 = 88$. This holds.
- (d) Re-evaluate term R88W based on the last letter discrepancy. The letter 'W' occupies position 23, whereas a perfect square sequence requires the 25th letter, 'Y'.
- (e) Because the final term should be R88Y instead of R88W to satisfy all mathematical rules, R88W is identified as the incorrect element.

Final Answer: R88W

Answer: (D)

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Q19.**Solution**

Concept: This analogical comparison links a thermal physical process with its resulting physical state of matter. The goal is to determine the state produced by the second process to complete the analogy.

Solution:

- (a) Analyze the first pair: 'Melt' and 'Liquid'. Melting is the physical process where a substance undergoes a phase transition into a liquid state.
- (b) Formulate the logical relationship bridge using a semantic template: [Phase Change Process] results in the formation of a [Product State of Matter].
- (c) Examine the initial term of the secondary pair: 'Freeze'. Freezing is a phase transition process where a liquid loses thermal energy.
- (d) Determine the resulting state of matter when a substance undergoes freezing. Freezing transforms a liquid substance directly into a solid state.
- (e) While ice is a specific example of frozen water, the term 'Solid' represents the universal state of matter produced, matching the structure of 'Liquid'.

Final Answer: Solid

Answer: (B)

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Q20.

Solution

Concept: Displacement problems track positional updates across geometric turns. Mapping these path intervals on a Cartesian coordinate grid allows for direct measurement of the net linear distance between the start and end points.

Solution:

- (a) Assume the man starts walking from the origin $(0, 0)$. Moving 6 km South brings him to the intermediate position $(0, -6)$.
- (b) He makes a left turn, which faces him towards the East. Walking 4 km along this vector changes his coordinates to $(4, -6)$.
- (c) He makes another left turn, which changes his direction to the North. Walking 6 km North adds 6 to his current y-coordinate.
- (d) Calculate his final position coordinates: $(4, -6 + 6) = (4, 0)$. The man is now located on the positive x-axis.
- (e) Measure the linear distance between the starting origin $(0, 0)$ and the final point $(4, 0)$, which gives a net displacement of exactly 4 km.

Final Answer: 4 km

Answer: (A)

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Q21.

Solution

Concept: Coded blood relations map genealogical linkages through mathematical or relational symbols. To deduce the correct structure, individual logical connections must be parsed systematically from left to right or right to left within the expressions to verify gender attributes and generational alignments.

Solution:

- (a) Map out the operational definitions provided: addition denotes a brother, subtraction signifies a sister, and multiplication represents a father.
- (b) Analyze the target condition to confirm: C must be a male child located exactly one generation level below M.
- (c) Evaluate option C, which states $M \times C + N$. Let us unpack these operational linkages step by step.
- (d) The expression segment $M \times C$ establishes that M is the father of C. This means C belongs to the generation directly under M.
- (e) The subsequent segment $C + N$ establishes that C is the brother of N. This explicitly identifies C as a male individual.
- (f) Combining these verified facts proves that C is a male child whose parent is M, which means C is the son of M.

Final Answer: $M \times C + N$

Answer: (C)

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Q22.

Solution

Concept: Logical conclusions require checking if statements are definitively true based on given facts. A valid conclusion must be an absolute certainty that can be derived directly from the statements, avoiding extreme generalizations or temporal assumptions.

Solution:

- (a) Analyze the primary statement provided: Many educational institutions are transitioning away from physical paper textbooks over to digital tablets.
- (b) Evaluate Conclusion I: Physical books will become completely obsolete globally within next year. This prediction uses an extreme and immediate timeframe.
- (c) The original statement uses the word 'many' rather than all, and contains no information supporting total global obsolescence by next year.
- (d) Evaluate Conclusion II: Digital learning platforms offer interactive benefits that appeal to modern institutions. This aligns with the logical rationale behind the transition.
- (e) Institutions choose to change their foundational teaching mediums because the target technology possesses clear beneficial features that attract them.
- (f) Thus, Conclusion I cannot be supported due to its extreme claims, while Conclusion II represents a sound deduction.

Final Answer: Only conclusion II follows

Answer: (B)

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Q23.

Solution

Concept: Geometric analogies match a two-dimensional shape with a defining spatial or structural measurement. The objective is to identify the term that represents the total boundary length of the second shape to maintain structural symmetry.

Solution:

- (a) Analyze the first analogical pair: Circle and Circumference. The circumference represents the total linear boundary length enclosing a circular region.
- (b) Establish the logical bridge formula for this comparison: [Two-Dimensional Shape] is paired with [Total Boundary Length Measurement].
- (c) Examine the first term of the secondary pair: Square. A square is a flat geometric polygon defined by four equal straight sides.
- (d) Identify the corresponding term that denotes the sum of the boundary lines for a straight-sided polygon. Area measures interior space, not boundaries.
- (e) The term 'Perimeter' defines the total outer boundary path enclosing a square, matching the functional role of a circumference for a circle.

Final Answer: Perimeter

Answer: (D)

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Q24.**Solution**

Concept: Letter shifts use constant numerical steps to map positions across the English alphabet. Solving this requires determining the positional change for each letter and applying that exact rule to the target word.

Solution:

- (a) Examine the reference word transformation: ORANGE is coded as PUBOHF. Analyze the shifts letter by letter.
- (b) O shifts to P (+1), R shifts to U (+3), A shifts to B (+1), N shifts to O (+1), G shifts to H (+1), and E shifts to F (+1).
- (c) Notice the second letter R shifts by +3 while all other letters follow a standard forward increment of +1.
- (d) Apply this precise positional shift rule to the target word MANGO to determine its output letters.
- (e) $M + 1 = N$, $A + 3 = D$, $N + 1 = O$, $G + 1 = H$, and $O + 1 = P$. The resulting string is NDOHP.

Final Answer: NBOPH

Answer: (B)

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Q25.

Solution

Concept: Syllogisms use set inclusion and exclusion rules to check the deductive validity of a conclusion. Drawing overlapping regions helps identify intersections that are structurally guaranteed by the premises.

Solution:

- (a) Interpret Premise I: No paper is a clip. This means the set of papers and the set of clips are entirely separate.
- (b) Interpret Premise II: Some clips are boards. This means there is an overlapping intersection between the clip set and the board set.
- (c) Look closely at the overlapping region containing boards that are clips. Since no clip can ever be a paper, those specific boards can never be papers.
- (d) Evaluate Conclusion I: Some boards are not papers. This statement is always true because the boards inside the clip set are completely blocked from papers.
- (e) Evaluate Conclusion II: No board is a paper. This asserts total separation, but the premises allow for the remaining parts of the board set to overlap with papers.
- (f) Since total exclusion is not guaranteed, only Conclusion I follows as an absolute certainty under all possible interpretations.

Final Answer: Only conclusion I follows

Answer: (A)

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Q26.

Solution

Concept: Circular arrangements require placing items in a closed loop based on relative positions. Defining an initial anchor point allows you to sequentially fill in positions relative to the left or right vectors of the participants.

Solution:

- (a) Arrange six seats in a circle facing inward. Anchor the first clear positional clue: A is to the immediate left of F.
- (b) Use the clue: E is between A and C. Since A is already placed, E must sit to the left of A, and C must sit to the left of E.
- (c) Use the clue: B is between F and D. Since F is already fixed on the right of A, B must sit to the right of F, and D must sit to the right of B.
- (d) Read the complete circular sequence in order around the loop: A, F, B, D, C, E.
- (e) Identify the person sitting directly opposite to B across the circular table arrangement. Counting three seats over from B leads to E.

Final Answer: E

Answer: (C)

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Q27.

Solution

Concept: Non-verbal matrices use visual patterns that evolve across a sequence of frames. Solving this requires tracking individual elements, such as dots or symbols, as they move along geometric steps like clockwise or counter-clockwise rotations.

Solution:

- (a) Break down the movement of the internal dot across the sequential frames of the matrix step by step.
- (b) In the first frame, the dot is located in the top-left quadrant of the circle.
- (c) In the second frame, the dot moves to the top-right quadrant, showing a single-step clockwise rotation.
- (d) In the third frame, the dot shifts down into the bottom-right quadrant, continuing its clockwise movement.
- (e) Following this pattern, the next logical step requires the dot to move one quadrant clockwise into the bottom-left position.
- (f) This matches option B, which depicts the dot located in the bottom-left quadrant.

Final Answer: Dot in the bottom-left quadrant

Answer: (B)

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Q28.

Solution

Concept: Alphanumeric matrix problems use independent rules to govern letter progressions and numeric patterns across rows or columns. The missing term is found by applying these verified rules to the incomplete line.

Solution:

- (a) Analyze the alphabetical progression across the horizontal rows: Row 1 has A, C, E, and Row 3 has M, O, Q. Both skip one letter (+2).
- (b) Apply this letter rule to Row 2: $G + 2 = I$, and $I + 2 = K$. This determines the missing letter is K.
- (c) Analyze the numeric pattern across the rows: Row 1 contains 2, 4, 6, and Row 3 contains 14, 16, 18. These are consecutive even numbers (+2).
- (d) Apply this numeric rule to Row 2: $8 + 2 = 10$, and $10 + 2 = 12$. This determines the missing number is 12.
- (e) Combine the calculated letter and number components to form the final missing matrix term: K12.

Final Answer: K12

Answer: (C)

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Q29.

Solution

Concept: A lateral mirror reflection flips an image horizontally across a vertical axis. The reading order reverses completely from left to right, and each individual letter undergoes an internal horizontal inversion.

Solution:

- (a) Understand how a vertical mirror reflection works: the left side of an object appears on the right side of the reflection, and vice versa.
- (b) Reverse the reading order of the letters in the word BLOCK. The original left-to-right word will now be read from right to left, starting with K.
- (c) Invert each character horizontally: K flips its arms to face left, C opens to the right, O stays identical, L flips its foot to the right, and B faces left.
- (d) Evaluate option B: it correctly reverses the letter order to start with K and accurately reflects the horizontal inversion of each character shape.
- (e) Option A fails because it simply reverses the word order without inverting the individual letter shapes, confirming option B is correct.

Final Answer: K reversed, C reversed, O, L reversed, B reversed

Answer: (B)

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Q30.**Solution**

Concept: Classification problems group items based on shared functional or structural properties. The odd item is identified because its primary purpose or category diverges from the common theme shared by the others.

Solution:

- (a) Analyze the structural functions of the items listed in the options group: Wall, Pillar, Roof, and Paint.
- (b) A wall is a core structural element that bears weight and encloses buildings.
- (c) A pillar is a load-bearing column essential for holding up architectural weights.
- (d) A roof is a primary physical structure that covers the top of a building. Walls, pillars, and roofs are all essential load-bearing structural elements.
- (e) Paint is a superficial coating applied for aesthetics or surface protection, not a structural component, making it the odd one out.

Final Answer: Paint

Answer: (D)

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Answer Key

Q	Ans	Q	Ans	Q	Ans	Q	Ans	Q	Ans
1	B	2	A	3	D	4	D	5	D
6	A	7	A	8	D	9	D	10	B
11	D	12	B	13	A	14	A	15	A
16	A	17	B	18	D	19	B	20	A
21	C	22	B	23	D	24	B	25	A
26	C	27	B	28	C	29	B	30	D

