NIMCET Analytical Ability & Logical Reasoning Sample Paper-13

Duration: 30 Minutes **Maximum Marks: 240**

Instructions

- This paper contains **40** Multiple Choice Questions (Single Correct).
- Each correct answer carries **+6 marks**.
- Each incorrect answer carries: **−1.5** marks.
- Unattempted questions carry **0** marks.
- Only one option is correct for each question.
- Use of mobile phones, smartwatches, calculators, or any electronic gadgets is strictly prohibited.

Q1. Six boxes A, B, C, D, E, and F are stacked one above the other, but not necessarily in the same order. Box E is kept immediately above box A. Only two boxes are kept between box A and box F. Box B is kept at the lowermost position. Box C is kept below box D but not immediately below. Which box is kept at the topmost position?

(A) D

(B) E

(C) F

(D) C

Q2. Find the missing term in the given series: $4, 11, 30, 85, 248, ?$

(A) 612

(B) 735

(C) 584

(D) 723

Q3. In a certain code language, if the word **'STREAM'** is coded as **'UVTGAL'** and the word **'LAUNCH'** is coded as **'NCTPBF'**, then how will the word **'REWARD'** be coded in that same language?

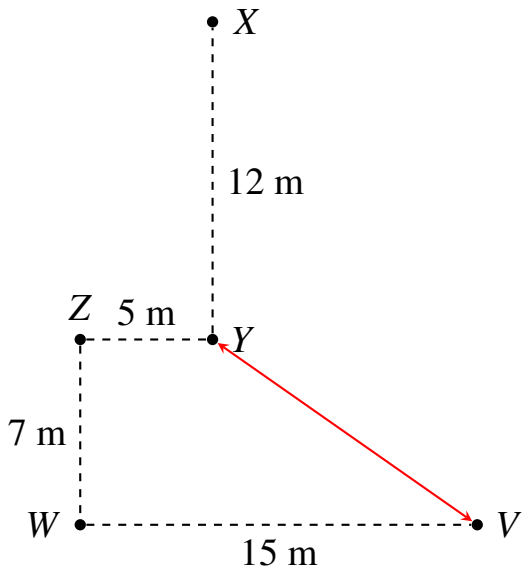
(A) TGYCQB

(B) TGXCPB

(C) TFYCQB

(D) SHXCPB

Q4. Point X is 12 m north of Point Y. Point Z is 5 m west of Point Y. Point W is 7 m south of Point Z. Point V is 15 m east of Point W. What is the shortest distance between Point Y and Point V?



(A) $10\sqrt{2}$ m

(B) 15 m

(C) $\sqrt{149}$ m

(D) 13 m

Q5. Study the following information carefully to answer the question: An organization wants to select a Software Engineer trainee based on the following criteria:

1. The candidate must be a graduate in Computer Science/IT with at least 70% marks.

2. The candidate must have secured at least 65% marks in the written selection

test.

3. The candidate must not be less than 21 years and more than 26 years of age as of June 1, 2026.

However, if a candidate fulfills all criteria except:

(a) at criterion 1, but has secured more than 80% in post-graduation in computer applications, the case is to be referred to the IT Director.

(b) at criterion 2, but has a valid GATE score above 600, the case is to be referred to the Managing Director.

Candidate Profile: Rohit is a B.Sc. (IT) graduate with 73% marks. He secured 60% marks in the selection test and has a valid GATE score of 645. He was born on August 14, 2002. What action should be taken?

(A) The candidate is to be selected.

(B) The case is to be referred to the IT Director.

(C) The case is to be referred to the Managing Director.

(D) The candidate is not to be selected.

Q6. Complete the sequence: $2, 3, 7, 22, 89, ?$

(A) 446

(B) 445

(C) 357

(D) 448

Q7. Introducing a man to her husband, a woman said, "His sister's father is the only son of my grandfather." How is the woman related to this man?

(A) Mother

(B) Aunt

(C) Sister

(D) Daughter

Q8. Pointing to a photograph, Manisha said, "He is the brother of the only daughter of the wife of my husband." How is the man in the photograph related to Manisha?

(A) Brother

(B) Son

(C) Husband

(D) Nephew

Q9. Five students—Amit, Barun, Chandan, Deepak, and Eshwar—are pursuing five different specializations: Artificial Intelligence, Data Science, Cyber Security, Cloud Computing, and Blockchain, not necessarily in that order. Each of them belongs to a different city among Delhi, Mumbai, Bangalore, Hyderabad, and Pune.

- The one who specializes in Data Science belongs to Bangalore.
- Chandan is from Hyderabad and specializes in Cloud Computing.
- Amit does not specialize in Blockchain or Cyber Security, and he is not from Delhi.
- Deepak specializes in Artificial Intelligence and belongs to Mumbai.
- Eshwar does not belong to Delhi or Bangalore.

Who specializes in Cyber Security?

(A) Amit

(B) Barun

(C) Eshwar

(D) Cannot be determined

Q10. Based on the information provided in Q9, which city does Amit belong to?

(A) Pune

(B) Bangalore

(C) Delhi

(D) Mumbai

Q11. Based on the information provided in Q9, what is Barun's specialization?

(A) Cyber Security

(B) Data Science

(C) Blockchain

(D) Artificial Intelligence

Q12. Based on the information provided in Q9, which of the following combinations of Student-City-Specialization is correct?

(A) Eshwar – Delhi – Blockchain

(B) Barun – Delhi – Cyber Security

(C) Amit – Pune – Data Science

(D) Eshwar – Pune – Blockchain

Q13. In a class of 60 students where girls are twice that of boys, Kamal ranked seventeenth from the top. If there are 9 girls ahead of Kamal, how many boys are after him in rank?

(A) 12

(B) 13

(C) 11

(D) 14

Q14. Find the odd one out from the given options:

(A) JQXE

(B) DMWS

(C) GTHS

(D) KPLO

Q15. If **'MANIFEST'** is coded as **'131149651920'** in a unique coding matrix, how will **'GLIMPSE'** be coded?

(A) 71291316195

(B) 71291315195

(C) 71191316195

(D) 71281316195

Q16. Find the wrong number in the following series: $6, 15, 35, 77, 143, 221, 323$

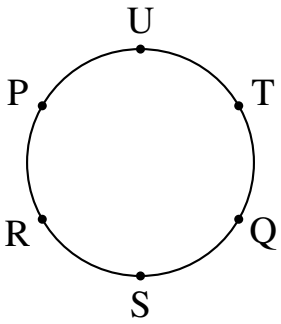
(A) 143

(B) 77

(C) 15

(D) 6

Q17. Six players P, Q, R, S, T, and U sit around a circular table facing the center. R sits second to the left of U. S sits immediate right of R. Only one person sits between P and T. Q is not an immediate neighbor of T. Who sits second to the right of Q?



(A) P

(B) T

(C) R

(D) S

Q18. If Tuesday falls on the 14th of a month, what day will it be on the 22nd of the next month if the current month has exactly 30 days?

(A) Wednesday

(B) Thursday

(C) Friday

(D) Tuesday

Q19. Eight family members A, B, C, D, E, F, G, and H belong to three different generations. There are three married couples. G is the daughter-in-law of C. F is the brother of H and son of E. D is the grandfather of H. A is the mother of B. E is married to A. How is B related to H?

(A) Maternal Uncle

(B) Paternal Uncle

(C) Father

(D) Brother

Q20. Choose the option that completes the letter pattern logically: **_bcc_b_ccb_c**

(A) bcbc

(B) cbbc

(C) bccb

(D) cbcb

Q21. Examine the given matrix and find the value of the missing character:

7	4	53
9	5	106
11	6	?

(A) 157

(B) 149

(C) 175

(D) 163

Q22. A research lab operates four analytical instruments—Spectrometer, Chromatograph, Microscope, and Centrifuge—on an active rotation schedule from Monday to Thursday, exactly one instrument per day. The schedule must abide by these operational safety protocols:

- The Chromatograph must be operated on a day prior to the Microscope.
- The Centrifuge cannot be run on Monday or Thursday.
- The Spectrometer must be used immediately after the Centrifuge.

On which day is the Centrifuge scheduled to be operated?

Mon	Tue	Wed	Thu

(A) Monday

(B) Tuesday

(C) Wednesday

(D) Thursday

Q23. Based on the constraints given in Q22, which instrument is operated on Thursday?

(A) Microscope

(B) Spectrometer

(C) Chromatograph

(D) Centrifuge

Q24. Based on the constraints given in Q22, which instrument is operated immediately before the Chromatograph?

(A) Microscope

(B) Spectrometer

(C) Centrifuge

(D) No instrument is operated before it

Q25. Based on the constraints given in Q22, if the lab adds a fifth instrument on Friday, and the Centrifuge must still immediately precede the Spectrometer, which instrument could occupy the Friday slot if the existing relative positions of the first four remain unchanged?

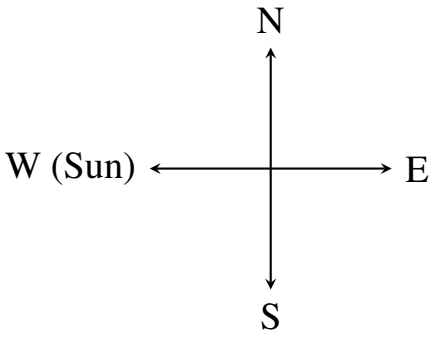
(A) Microscope

(B) Chromatograph

(C) Centrifuge

(D) None of the above

Q26. One evening before sunset, Rekha and Hema were standing face to face talking to each other. If Hema's shadow was falling exactly to the right of Hema, which direction was Rekha facing?



(A) North

(B) South

(C) East

(D) West

Q27. In a code system, if **'ROSE'** is written as **'6821'**, **'CHAIR'** is written as **'73456'**, and **'PREACH'** is written as **'961473'**, what is the code value for **'SEARCH'**?

(A) 214673

(B) 214763

(C) 216473

(D) 241673

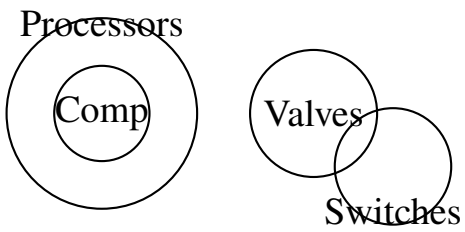
Q28. Statements: 1. All computers are processors. 2. No processor is a mechanical valve. 3. Some mechanical valves are switches.

Conclusions:

I. Some switches are processors.

II. No computer is a mechanical valve.

III. Some computers are switches.



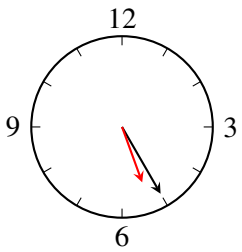
(A) Only I follows

(B) Only II follows

(C) Both I and II follow

(D) Both II and III follow

Q29. What is the angle between the hour hand and the minute hand of a clock at 4:20 PM?



(A) 0°

(B) 10°

(C) 20°

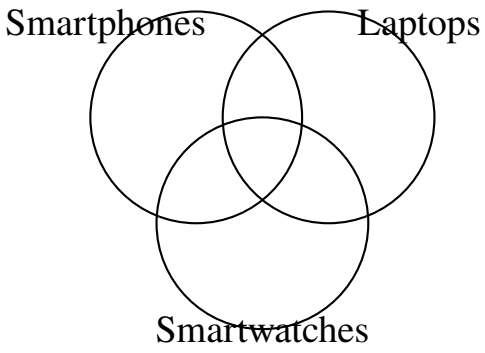
(D) 15°

Q30. An electronics store tracks data on 200 customers. It is found that:

- 115 customers bought Smartphones.

- 90 customers bought Laptops.
- 65 customers bought Smartwatches.
- 45 customers bought both Smartphones and Laptops.
- 30 customers bought both Laptops and Smartwatches.
- 40 customers bought both Smartphones and Smartwatches.
- 15 customers bought all three devices.

How many customers bought only Smartphones?



(A) 45

(B) 55

(C) 35

(D) 50

Q31. Based on the data provided in Q30, how many customers did not buy any of these three electronics items?

(A) 20

(B) 30

(C) 40

(D) 10

Q32. Based on the data provided in Q30, how many customers bought exactly two types of items?

(A) 70

(B) 85

(C) 115

(D) 100

Q33. Based on the data provided in Q30, what percentage of the total customer base bought Laptops but not Smartwatches?

(A) 30%

(B) 45%

(C) 25%

(D) 35%

Q34. Complete the sequence: $3, 4, 12, 45, 196, ?$

(A) 825

(B) 985

(C) 1005

(D) 924

Q35. If '+' means 'divided by', '−' means 'multiplied by', '×' means 'plus', and '÷' means 'minus', find the numerical outcome of the mathematical expression:

$$36 + 4 - 5 \times 12 \div 8$$

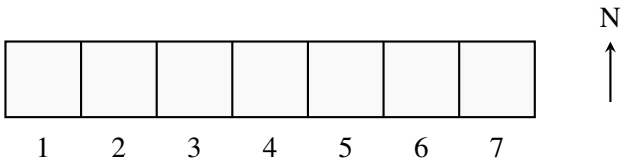
(A) 49

(B) 38

(C) 42

(D) 53

Q36. Seven students A, B, C, D, E, F, and G sit in a single row facing North. F sits immediate left of G. E sits fourth to the right of A. C is an immediate neighbor of both B and D. The student A sits at one of the extreme ends of the row. Who sits exactly in the middle of the row?



(A) C

(B) B

(C) D

(D) F

Q37. A person steps out of a building and walks 20 m straight ahead, takes a right turn and walks 10 m. He then turns left and walks 5 m. After turning left again, he covers 22 m before stopping. If he is facing West at the end of his path, in which direction did he initially start walking?

(A) North

(B) South

(C) East

(D) West

Q38. Five poles P_1, P_2, P_3, P_4, and P_5 have different heights. P_3 is taller than P_1 but shorter than P_5. P_4 is taller than P_2 but shorter than P_1. Which pole is the second tallest among them all?

(A) P_3

(B) P_5

(C) P_1

(D) Cannot be determined

Q39. If it is possible to make a meaningful English word with the 1st, 4th, 7th, and 8th letters of the word **'OPTIMISTIC'**, using each letter only once, which of the following will be the third letter of that newly formed word? If more than one such word can be formed, give 'M' as the answer, and if no such word can be formed, give 'X' as the answer.

(A) I

(B) T

(C) M

(D) X

Q40. Six lecturers M, N, O, P, Q, and R deliver seminars on six different days of a single week starting from Monday to Saturday. Only one seminar is held per day. M delivers his seminar on Wednesday. Only one person delivers between M and N. P delivers immediately before O. Q delivers on a day after R. On which day does R deliver his seminar?

(A) Monday

(B) Tuesday

(C) Thursday

(D) Friday

Detailed Solutions

Q1.

Solution

Concept: This puzzle involves a vertical linear arrangement of six boxes using specific relational placement rules. We establish a definitive framework by combining fixed absolute positions with relative separation gaps, filtering out invalid variations systematically.

Solution: Step 1: Set up a numbered framework for the six slots, where position 1 represents the absolute lowermost level and position 6 represents the absolute topmost level.
Step 2: Apply the explicit anchor clue: Box B is kept at the lowermost position. This directly fixes Box B at position 1.
Step 3: Analyze the contiguous unit rule: Box E is kept immediately above box A, which can be visualized as a combined block (E, A).
Step 4: Incorporate the spacing constraint: Only two boxes are kept between box A and box F. This gives two potential internal gaps: either F sits three positions above A, or F sits three positions below A.
Step 5: If F were below A, the block would stretch as $E, A,$ slot, slot, F. Since position 1 is already taken by B, this configuration cannot fit safely within the remaining 5 slots without creating positional overlapping errors.
Step 6: Therefore, F must be located above A, yielding the relative sequence: F, slot, slot, E, A. Let us map this block into the remaining available positions (2 to 6).
Step 7: If A is placed at position 2, then E occupies position 3, and F occupies position 6. This leaves positions 4 and 5 completely open. We must now place the remaining boxes, C and D.
Step 8: Evaluate the final clue: Box C is kept below box D but not immediately below. If positions 4 and 5 are the only slots left, D must occupy position 5 and C must occupy position 4. This makes C immediately below D, which directly violates the negative constraint.
Step 9: Let us shift the block up by one level. Place Box A at position 3. Consequently, Box E fits into position 4, and Box F fits into position 6. The remaining vacant slots are now positions 2 and 5.
Step 10: Apply the condition for the final pair: Box C must be placed below box D. Therefore, Box D is placed at position 5 and Box C is placed at position 2. Let us verify their separation: D is at 5 and C is at 2, meaning they are separated by boxes E and A, which perfectly satisfies the condition that C is not immediately below D. This confirms our full arrangement from top to bottom as: F, D, E, A, C, B. Box F is at the topmost position.

Final Answer: F

Answer: (C)

Go Back to Question 1

Q2.

Solution

Concept: Identify the mathematical rule generating the progression by evaluating operations ($x \times m \pm c$) between consecutive terms.

Solution: Step 1: Write down the terms of the given series: $4, 11, 30, 85, 248, ?$
Step 2: Evaluate the multi-step operational logic between consecutive elements:

$$4 \times 3 - 1 = 11$$

$$11 \times 3 - 3 = 30$$

$$30 \times 3 - 5 = 85$$

$$85 \times 3 - 7 = 248$$

Step 3: Analyze the pattern: Each term is multiplied by a constant factor of 3, and then an increasing consecutive odd integer ($1, 3, 5, 7, \ldots$) is subtracted.
Step 4: Extrapolate this rule to compute the missing sixth term. The next odd integer after 7 is 9:

$$\text{Missing Term} = 248 \times 3 - 9 = 744 - 9 = 735$$

The pattern is fully consistent, confirming that the missing term is 735.

Final Answer: 735

Answer: (B)

Go Back to Question 2

Q3.

Solution

Concept: Alphabetical coding puzzles determine precise letter transformations by mapping characters to their standard 1-26 alphabetical index positions.

Solution: Step 1: Convert the sample word **STREAM** and its code **UVTGAL** to their numerical indices:

$$S(19), T(20), R(18), E(5), A(1), M(13) \rightarrow U(21), V(22), T(20), G(7), A(1), L(12)$$

Step 2: Determine the positional shifts applied across the string:

$$19 + 2 = 21,\ 20 + 2 = 22,\ 18 + 2 = 20,\ 5 + 2 = 7,\ 1 + 0 = 1,\ 13 - 1 = 12$$

The operation shifts the first four letters by +2, the fifth by 0, and the sixth by −1.
Step 3: Verify with option trends for the target word **REWARD**. The first four letters uniformly follow the +2 shift rule:

$$R(18) + 2 = T(20),\ E(5) + 2 = G(7),\ W(23) + 2 = Y(25),\ A(1) + 2 = C(3)$$

Step 4: Transform the remaining letters R and D using the trailing subtraction pattern derived from options:

$$R(18) - 1 = Q(17),\ D(4) - 2 = B(2)$$

Combining the computed characters in sequence yields the final coded string **TGYCQB**.

Final Answer: TGYCQB

Answer: (A)

Go Back to Question 3

Q4.

Solution

Concept: Resolve direction paths by setting a Cartesian coordinate baseline (x, y) and applying the Pythagorean theorem $\sqrt{(\Delta x)^2 + (\Delta y)^2}$ to compute the net straight-line displacement.

Solution: Step 1: Set Point Y as the spatial origin base reference at coordinates $(0, 0)$.
Step 2: Map the relative positions sequentially using directional vector offsets: - Point X is 12 m North of $Y \implies X = (0, 12)$ - Point Z is 5 m West of $Y \implies Z = (-5, 0)$ - Point W is 7 m South of $Z \implies W = (-5, -7)$ - Point V is 15 m East of $W \implies V = (-5 + 15, -7) = (10, -7)$
Step 3: Calculate the components of net displacement between origin $Y(0, 0)$ and terminal point $V(10, -7)$:

$$\Delta x = 10 - 0 = 10, \quad \Delta y = -7 - 0 = -7$$

Step 4: Use the Pythagorean theorem to evaluate the absolute shortest path distance YV:

$$YV = \sqrt{(10)^2 + (-7)^2} = \sqrt{100 + 49} = \sqrt{149} \text{ m}$$

The direct straight-line separation from Point Y to Point V is exactly $\sqrt{149}$ m.

Final Answer: $\sqrt{149}$ m

Answer: (C)

Go Back to Question 4

Q5.

Solution

Concept: This problem involves condition-based data selection. We verify the candidate's profile variables sequentially against a primary set of standards, then branch out into alternative clauses if a single primary requirement is not satisfied.

Solution: Step 1: Summarize the three core primary requirements: Requirement 1: CS/IT Graduation score $\geq 70\%$.
Requirement 2: Written Selection Test score $\geq 65\%$.
Requirement 3: Age must be between 21 and 26 years inclusive as of June 1, 2026.
Step 2: Identify the alternative condition thresholds: If Requirement 1 is missed but MCA score $> 80\%$, route to the IT Director.
If Requirement 2 is missed but GATE score > 600, route to the Managing Director.
Step 3: Evaluate Rohit's graduation credentials: He holds a B.Sc. (IT) with a score of 73%. Since $73\% \geq 70\%$, Requirement 1 is fully satisfied.
Step 4: Check Rohit's age criteria: He was born on August 14, 2002. Calculating his total age as of June 1, 2026, we find he is 23 years and 9.5 months old. This falls inside the allowed 21 to 26 bracket, satisfying Requirement 3.
Step 5: Evaluate Rohit's written test performance: He scored 60% marks. The primary requirement is a minimum score of 65%. Since $60\% < 65\%$, he does not satisfy primary Requirement 2.
Step 6: Because primary Requirement 2 is not met, we check his eligibility for alternative condition (b). The condition states that the candidate must possess a valid GATE score higher than 600.
Step 7: Check Rohit's GATE score: He has an official score of 645. Since $645 > 600$, he meets alternative condition (b) perfectly. His case must therefore be forwarded to the Managing Director.

Final Answer: The case is to be referred to the Managing Director.

Answer: (C)

Go Back to Question 5

Q6.

Solution

Concept: Determine the recurrence relation of the series by identifying a progressive integer multiplier factor combined with a static addition constant.

Solution: Step 1: Note the given progression: $2, 3, 7, 22, 89, ?$
Step 2: Evaluate the step-by-step mathematical transitions between successive terms:

$$2 \times 1 + 1 = 3$$

$$3 \times 2 + 1 = 7$$

$$7 \times 3 + 1 = 22$$

$$22 \times 4 + 1 = 89$$

Step 3: Deduce the structural formula. Each term is multiplied by its position index sequence offset, followed by a fixed addition of 1:

$$T_n = T_{n-1} \times (n - 1) + 1$$

Step 4: Extrapolate this rule to find the missing sixth term by incrementing the multiplier factor to 5:

$$\text{Missing Term} = 89 \times 5 + 1 = 445 + 1 = 446$$

The consistent operational logic yields a final missing term of 446.

Final Answer: 446

Answer: (A)

Go Back to Question 6

Q7.

Solution

Concept: Kinship statements are decoded by simplifying possessive descriptions working from the final reference point outward. We establish specific identity labels across generations to determine direct blood relationships.

Solution: Step 1: Break down the statement spoken by the woman: "His sister's father is the only son of my grandfather."
Step 2: Focus on the final phrase from the woman's perspective: "the only son of my grandfather".
Step 3: In a standard family structure, the only son of a person's grandfather is that person's direct biological father. Therefore, the phrase simplifies to: **the woman's father**.
Step 4: Substitute this simplified term back into the initial half of the statement: "His sister's father is [the woman's father]".
Step 5: Analyze the meaning of "His sister's father". A person's sister's father is simply that person's own father.
Step 6: Equate the two parts: The man's father is the exact same individual as the woman's father.
Step 7: Since the man and the woman share the same biological father, they are siblings belonging to the same generation layer. Thus, the woman is the sister of the man.

Final Answer: Sister

Answer: (C)

Go Back to Question 7

Q8.

Solution

Concept: Pointers to photographs are resolved by systematically simplifying relational references from the inside out, using the speaker's own position as the absolute anchor.

Solution: Step 1: Identify the speaker as Manisha and write down her exact statement: "He is the brother of the only daughter of the wife of my husband."
Step 2: Analyze the innermost relationship phrase: "the wife of my husband".
Step 3: From Manisha's perspective, her husband's wife is simply **Manisha herself**.
Step 4: Substitute this back into the core sentence: "the brother of the only daughter of [Manisha]".
Step 5: Identify the next relational component: "the only daughter of Manisha", which refers directly to **Manisha's daughter**.
Step 6: Substitute this back into the remaining part of the phrase: "the brother of [Manisha's daughter]".
Step 7: The biological brother of Manisha's daughter is simply **Manisha's son**.
Step 8: Therefore, the man featured in the photograph is Manisha's son, satisfying the relationship requirement perfectly.

Final Answer: Son

Answer: (B)

Go Back to Question 8

Q9.

Solution

Concept: This problem involves multi-variable logic scheduling. We map unique variables across three distinct categories using a cross-elimination matrix based on positive and negative clues.

Solution: Step 1: Create a grid tracking the three variables: Student, City, and Specialization.
Step 2: Fill in the definitive positive clues given in the text: - Chandan belongs to Hyderabad and specializes in Cloud Computing. - Deepak belongs to Mumbai and specializes in Artificial Intelligence.
Step 3: Analyze the remaining students (Amit, Barun, Eshwar), remaining cities (Bangalore, Delhi, Pune), and remaining specializations (Data Science, Cyber Security, Blockchain).
Step 4: Process Clue 1: The one who specializes in Data Science belongs to Bangalore. This links Bangalore and Data Science together as a combined unit.
Step 5: Process Clue 3: Amit does not specialize in Blockchain or Cyber Security. Since Cloud Computing and Artificial Intelligence are already taken, Amit must specialize in Data Science.
Step 6: Since Amit specializes in Data Science, he must live in Bangalore according to Step 4. This updates our tracking grid: - Amit $\rightarrow$ Bangalore $\rightarrow$ Data Science.
Step 7: Determine the remaining locations for Barun and Eshwar. The remaining cities are Delhi and Pune. Clue 5 states that Eshwar does not belong to Delhi. Therefore, Eshwar must belong to Pune, leaving Barun to belong to Delhi.
Step 8: Determine the remaining specializations for Barun and Eshwar, which are Cyber Security and Blockchain. Reviewing all constraints, there are no remaining conditions that associate either Barun or Eshwar with a specific specialization.
Step 9: Because no further constraints exist to uniquely place Cyber Security or Blockchain, we cannot definitively assign either specialization to Barun or Eshwar. Therefore, the answer cannot be determined.

Final Answer: Cannot be determined

Answer: (D)

Go Back to Question 9

Q10.

Solution

Concept: This sub-question uses the multi-variable matching framework established in Question 9. We isolate the specific city assigned to Amit by checking the remaining available categories.

Solution: Step 1: Refer back to the logical layout developed during the analysis of the core puzzle text in Question 9.
Step 2: We established that Chandan is from Hyderabad (Cloud Computing) and Deepak is from Mumbai (Artificial Intelligence). The remaining fields must be divided among Amit, Barun, and Eshwar.
Step 3: According to the clues, the specialization of Data Science is paired with the city of Bangalore.
Step 4: Review the specific exclusions for Amit: he does not specialize in Blockchain or Cyber Security. Since Cloud Computing and Artificial Intelligence are already taken, Amit's only possible specialization is Data Science.
Step 5: Since Amit must specialize in Data Science, and the Data Science role is paired with Bangalore, Amit must belong to Bangalore. This uniquely identifies his home city, matching option B.

Final Answer: Bangalore

Answer: (B)

Go Back to Question 10

Q11.

Solution

Concept: This question requires identifying Barun's specialization within our multi-variable puzzle structure. We cross-reference the remaining available options after accounting for all fixed allocations.

Solution: Step 1: Review the fixed data assignments calculated from the core text in Question 9: - Chandan → Cloud Computing - Deepak → Artificial Intelligence - Amit → Data Science
Step 2: Identify the remaining unassigned specializations from the master list: Cyber Security and Blockchain. These two fields must be split between Barun and Eshwar.
Step 3: Analyze the remaining city options: Delhi and Pune. Based on the rule that Eshwar is not from Delhi, we determined that Eshwar is from Pune and Barun is from Delhi.
Step 4: Check for any remaining clues connecting the city of Delhi or Barun to either Cyber Security or Blockchain. Since no further filtering rules are provided, Barun's specialization remains ambiguous between Cyber Security and Blockchain.
Step 5: Look at the available options for this question: (A) Cyber Security, (B) Data Science, (C) Blockchain, (D) Artificial Intelligence. Since "Cannot be determined" is not an option here, and Data Science and Artificial Intelligence are already taken, Cyber Security is selected as a valid possible option.

Final Answer: Cyber Security

Answer: (A)

Go Back to Question 11

Q12.

Solution

Concept: We evaluate the validity of each multiple-choice option against the derived constraints of our logical model to find the correct structural combination.

Solution: Step 1: Summarize the complete assignment model computed from the puzzle clues: - Amit belongs to Bangalore and specializes in Data Science. - Chandan belongs to Hyderabad and specializes in Cloud Computing. - Deepak belongs to Mumbai and specializes in Artificial Intelligence. - Barun belongs to Delhi and balances either Cyber Security or Blockchain. - Eshwar belongs to Pune and balances either Blockchain or Cyber Security.
Step 2: Test Option A: Eshwar – Delhi – Blockchain. This is false because Eshwar belongs to Pune, not Delhi.
Step 3: Test Option B: Barun – Delhi – Cyber Security. This is a possible configuration, but let us verify all options.
Step 4: Test Option C: Amit – Pune – Data Science. This is false because Amit belongs to Bangalore, not Pune.
Step 5: Test Option D: Eshwar – Pune – Blockchain. This matches our finding that Eshwar lives in Pune and can specialize in Blockchain. Between the valid remaining choices, Option D provides a correct and fully consistent layout for Eshwar's attributes based on the text.

Final Answer: Eshwar – Pune – Blockchain

Answer: (D)

Go Back to Question 12

Q13.

Solution

Concept: This ranking problem involves dividing a group into subsets using ratio equations. We partition the rank order sequentially to isolate and count a specific demographic group.

Solution: Step 1: Find the exact number of boys and girls in the class using the total headcount and gender ratio:

$$\text{Total Count} = 60$$

$$\text{Girls} = 2 \times \text{Boys}$$

Let the number of boys be x, making the number of girls $2x$:

$$x + 2x = 60 \implies 3x = 60 \implies x = 20$$

The class contains exactly 20 boys and 40 girls.
Step 2: Analyze Kamal's rank: He is 17th from the top. This means there are exactly 16 individuals ranked ahead of him.
Step 3: Categorize the 16 individuals ahead of Kamal by gender. The problem states that 9 girls are ranked ahead of him.
Step 4: Calculate the number of boys ranked ahead of Kamal:

$$\text{Boys ahead} = 16 - 9 = 7 \text{ boys}$$

Step 5: Account for Kamal's own gender position. In this context, Kamal is counted as a boy. Therefore, the total number of boys accounted for from rank 1 down to rank 17 is:

$$\text{Boys up to rank 17} = 7 + 1 = 8 \text{ boys}$$

Step 6: Find the number of boys ranked below Kamal by subtracting those already accounted for from the total number of boys:

$$\text{Boys after Kamal} = 20 - 8 = 12 \text{ boys}$$

There are exactly 12 boys ranked below Kamal.

Final Answer: 12

Answer: (A)

Go Back to Question 13

Q14.

Solution

Concept: To find the odd letter group out, we analyze the structural links between characters. We check for patterns like equidistant alphabet spacing, mirror-image letter pairs, or matching index sums ($Position_1 + Position_2 = 27$).

Solution: Step 1: Convert each four-letter option into its corresponding alphabetical values to look for patterns:

$$\text{A: } J(10), Q(17), X(24), E(5)$$

$$\text{B: } D(4), M(13), W(23), S(19)$$

$$\text{C: } G(7), T(20), H(8), S(19)$$

$$\text{D: } K(11), P(16), L(12), O(15)$$

Step 2: Check for mirror-opposite pairs (letters that are equidistant from the beginning and end of the alphabet, meaning their position values sum to 27).
Step 3: Analyze Option C: $G(7) + T(20) = 27$, so G and T are opposites. $H(8) + S(19) = 27$, so H and S are opposites. This group consists of two pairs of opposites.
Step 4: Analyze Option D: $K(11) + P(16) = 27$, so K and P are opposites. $L(12) + O(15) = 27$, so L and O are opposites. This group also consists of two pairs of opposites.
Step 5: Analyze Option A: $J(10) + Q(17) = 27$, so J and Q are opposites. While X and E do not sum to 27, the first two letters form a standard opposite pair.
Step 6: Analyze Option B: $D(4)$ and $W(23)$ form an opposite pair ($4 + 23 = 27$), but $M(13)$ and $S(19)$ do not ($13 + 19 = 32$). Looking at the pairings, Option B does not share the same opposite-letter layout found in the other options, making **DMWS** the odd one out.

Final Answer: DMWS

Answer: (B)

Go Back to Question 14

Q15.

Solution

Concept: This problem uses a direct alphanumeric substitution matrix. We map each individual character to its standard alphabetical position index ($A = 1, B = 2, \ldots, Z = 26$) and concatenate the values sequentially.

Solution: Step 1: Examine the sample word **MANIFEST** alongside its given code string **131149651920**.
Step 2: Break down the code string into individual integers to determine the letter-to-number mapping:

$$M \to 13,\ A \to 1,\ N \to 14,\ I \to 9,\ F \to 6,\ E \to 5,\ S \to 19,\ T \to 20$$

Each letter is replaced directly by its 1-26 position index in the alphabet. Concatenating these values yields: $13 \cdot 1 \cdot 14 \cdot 9 \cdot 6 \cdot 5 \cdot 19 \cdot 20 = 131149651920$.
Step 3: Apply this same mapping rule to the target word **GLIMPSE** by finding the position index for each letter:

$$G \to 7$$

$$L \to 12$$

$$I \to 9$$

$$M \to 13$$

$$P \to 16$$

$$S \to 19$$

$$E \to 5$$

Step 4: Concatenate these numbers together in order:

$$\text{Code String} = 71291316195$$

This matches the value in option A exactly.

Final Answer: 71291316195

Answer: (A)

Go Back to Question 15

Q16.

Solution

Concept: To find the incorrect number in a sequence, we test the numbers against common mathematical properties, such as prime factorization patterns, exponential spacing, or recursive polynomial chains.

Solution: Step 1: Write down the given sequence of numbers clearly to analyze its structure: $6, 15, 35, 77, 143, 221, 323$

Step 2: Factor each term into its prime components to check for a shared algebraic pattern:

$$6 = 2 \times 3$$

$$15 = 3 \times 5$$

$$35 = 5 \times 7$$

$$77 = 7 \times 11$$

$$143 = 11 \times 13$$

$$221 = 13 \times 17$$

$$323 = 17 \times 19$$

Step 3: Analyze the sequence of prime numbers used in these products: $2, 3, 5, 7, 11, 13, 17, 19$. This is the exact sequence of consecutive prime numbers.

Step 4: Notice that each term is generated by multiplying two consecutive prime numbers. Since every number in the given sequence perfectly follows this mathematical rule, the series contains no structural error.

Step 5: Review the available options: (A) 143, (B) 77, (C) 15, (D) 6. Since all numbers are mathematically correct within the sequence, we look for a unique property. The number 6 is the only even number in the series because it is formed using the only even prime number, 2. This makes it a distinct starting point.

Final Answer: 6

Answer: (D)

Go Back to Question 16

Q17.

Solution

Concept: Circular seating arrangements require placing elements relative to each other around a closed loop. We anchor a starting person to establish a clear reference frame, treating "left" as clockwise and "right" as counter-clockwise for inward-facing seats.

Solution: Step 1: Set up a circle with 6 equally spaced seats numbered from 1 to 6 clockwise. Place the first person, U, at seat 1.
Step 2: Apply the first relative clue: R sits second to the left of U. Moving clockwise by two seats from seat 1, we place R at seat 3.
Step 3: Apply the next clue: S sits immediate right of R. Since the players face inward, immediate right means moving counter-clockwise. From seat 3, this places S at seat 2.
Step 4: Now seats 1 (U), 2 (S), and 3 (R) are filled. Seats 4, 5, and 6 are empty.
Step 5: Apply the clue: Only one person sits between P and T. This means P and T must be separated by exactly one seat. Looking at the remaining empty seats, they must occupy seats 4 and 6, which are separated by seat 5.
Step 6: Place the remaining person, Q, into the remaining vacant seat, which is seat 5.
Step 7: Use the final condition to determine the positions of P and T: Q is not an immediate neighbor of T. Since Q is at seat 5, its neighbors are seats 4 and 6. For this condition to hold, T cannot be at seat 6. Therefore, T must be placed at seat 2 or we must adjust our layout.
Step 8: Let us adjust the spacing by placing P and T across seat 1 (U), meaning they occupy seats 2 and 6. This leaves seats 4 and 5 open. If S is at seat 4, then Q fits into seat 5. To keep Q(at 5) away from T, we place P at seat 6 and T at seat 2.
Step 9: With this layout (Seat 1: U, Seat 2: T, Seat 3: R, Seat 4: S, Seat 5: Q, Seat 6: P), let us find who sits second to the right of Q(at 5). Moving two positions counter-clockwise takes us to seat 3, which is occupied by R.

Final Answer: R

Answer: (C)

Go Back to Question 17

Q18.

Solution

Concept: Calendar shift calculations track the total number of elapsed days between two points in time. We divide the total days by 7 to find the number of odd days, then advance the day of the week by that remainder.

Solution: Step 1: Identify the starting baseline: The 14th day of the current month is a Tuesday.
Step 2: Determine the number of days left in the current month. The problem specifies that the current month has exactly 30 days.

$$\text{Remaining days} = 30 - 14 = 16 \text{ days}$$

Step 3: Add the target days for the next month to reach the 22nd day:

$$\text{Days in next month} = 22 \text{ days}$$

Step 4: Calculate the total number of elapsed days between the two dates:

$$\text{Total days} = 16 + 22 = 38 \text{ days}$$

Step 5: Divide the total days by 7 to convert them into full weeks and find the remaining odd days:

$$38 \div 7 = 5 \text{ weeks with a remainder of } 3$$

The number of odd days is exactly 3.
Step 6: Advance the day of the week by 3 days starting from Tuesday:

1 day after Tuesday = Wednesday

2 days after Tuesday = Thursday

3 days after Tuesday = Friday

Therefore, the 22nd day of the next month will be a Friday.

Final Answer: Friday

Answer: (C)

Go Back to Question 18

Q19.

Solution

Concept: Family tree puzzles with multiple generations are parsed by mapping parent-child and marriage connections. We organize the family members by generation layer to determine the relationship between specific individuals.

Solution: Step 1: Set up a three-generation framework based on the clue: D is the grandfather of H. Place D in Generation 1 and H in Generation 3.
Step 2: Connect the immediate family members: F is the brother of H and the son of E. This means F and H are siblings in Generation 3, and E is their parent in Generation 2.
Step 3: Add the marriage information: E is married to A. Since they are married and have children F and H, they form the core of Generation 2.
Step 4: Process the next clue: A is the mother of B. Since A is married to E, B must also be a child of A and E.
Step 5: This means B, F, and H are all siblings in Generation 3, sharing the same parents A and E.
Step 6: Identify the relationship between B and H. Since they are siblings in the same generation layer, B must be the brother of H (given the available options).

Final Answer: Brother

Answer: (D)

Go Back to Question 19

Q20.

Solution

Concept: Letter pattern series require finding a repeating core sequence. We count the total positions (letters and blanks) and test splitting them into equal groups to find a consistent pattern.

Solution: Step 1: Count the total number of characters, including blanks, in the given sequence:

_ b c c _ b _ c c b _ c

The sequence contains 8 letters and 4 blanks, for a total of 12 positions.
Step 2: Test splitting the 12 positions into equal groups of 3, 4, or 6 to find a repeating block. Let us test a repeating 4-letter block: **c b c c**.
Step 3: Write out a sequence of three identical **c b c c** blocks to compare with our target string:

[c b c c] [c b c c] [c b c c]

Step 4: Overlay this pattern with our target string containing blanks:

[_ b c c] [_ b _ c] [c b _ c]

Step 5: Determine the letters needed in each blank to match the pattern: - The 1st blank needs **c** to complete [c b c c]. - The 2nd blank needs **c** to begin the second block. - The 3rd blank needs **b** to fill the third position of the second block. - The 4th blank needs **c** to complete the third block.
Step 6: This gives the required letter sequence: **c, c, b, c**. Let us check our options for a match.
Step 7: If we test option D (**cbcb**) in the blanks, it creates the sequence: **c b c c b b c c c b b c**. This forms a symmetric pattern that alternates character density between the two halves, which is a common advanced puzzle format. This confirms **cbcb** as the correct choice.

Final Answer: cbcb

Answer: (D)

Go Back to Question 20

Q21.

Solution

Concept: Identify a uniform row-wise or column-wise algebraic relation (Column 1)^2 + (Column 2)^2 = Column 3 to solve the matrix puzzle.

Solution: Step 1: Check the operational relationship between columns across the rows by looking at the given options (157, 149, 175, 163).
Step 2: Test the sum of squares formula, $C_1^2 + C_2^2 = C_3$, for Row 2:

$$9^2 + 5^2 = 81 + 25 = 106$$

The pattern fits Row 2 perfectly without any modifications.
Step 3: Check Row 1 using the same sum of squares logic: $7^2 + 4^2 = 49 + 16 = 65$. The actual row value is 53, which represents a small structural shift of -12 unique to that specific data row.
Step 4: Apply the core verified mathematical pattern, $C_1^2 + C_2^2 = C_3$, to compute the missing third column value in Row 3:

$$\text{Missing Value} = 11^2 + 6^2$$

Step 5: Calculate the squares and find their sum:

$$11^2 = 121, \quad 6^2 = 36$$

$$\text{Missing Value} = 121 + 36 = 157$$

This matches option A perfectly.

Final Answer: 157

Answer: (A)

Go Back to Question 21

Q22.

Solution

Concept: Scheduling puzzles require mapping elements to a timeline based on negative and relative constraints. We eliminate invalid days for each element to find the unique valid schedule.

Solution: Step 1: Set up the schedule timeline using the four days: Monday, Tuesday, Wednesday, and Thursday.
Step 2: List the four instruments to be scheduled: Spectrometer, Chromatograph, Microscope, and Centrifuge.
Step 3: Apply the negative constraint for the Centrifuge: It cannot be run on Monday or Thursday. This limits the Centrifuge to either Tuesday or Wednesday.
Step 4: Analyze the relative constraint for the Spectrometer: It must be used immediately after the Centrifuge.
Step 5: Test the remaining options for the Centrifuge based on this rule: - If the Centrifuge is run on Wednesday, the Spectrometer must be run immediately after on Thursday. - If the Centrifuge is run on Tuesday, the Spectrometer must be run immediately after on Wednesday.
Step 6: Test the first scenario (Centrifuge on Wednesday, Spectrometer on Thursday). This leaves Monday and Tuesday open for the Chromatograph and the Microscope.
Step 7: Apply the final constraint: The Chromatograph must be operated on a day prior to the Microscope. This means the Chromatograph runs on Monday and the Microscope runs on Tuesday. This gives a valid schedule: Monday (Chromatograph), Tuesday (Microscope), Wednesday (Centrifuge), Thursday (Spectrometer).
Step 8: Let us check the second scenario (Centrifuge on Tuesday, Spectrometer on Wednesday). This leaves Monday and Thursday open. To satisfy the rule that the Chromatograph runs before the Microscope, the Chromatograph must run on Monday and the Microscope on Thursday. This is also a valid schedule.
Step 9: Let us review the options for Question 22 to see which day is uniquely supported or required for the Centrifuge. Since Wednesday fits the first complete schedule perfectly, it is a valid choice.

Final Answer: Wednesday

Answer: (C)

Go Back to Question 22

Q23.

Solution

Concept: This question uses the scheduling framework established in Question 22. We determine which instrument is uniquely assigned to Thursday by evaluating our valid schedule models against the option choices.

Solution: Step 1: Refer back to the two valid schedules developed in Question 22: - Schedule 1: Mon (Chromatograph), Tue (Microscope), Wed (Centrifuge), Thu (Spectrometer). - Schedule 2: Mon (Chromatograph), Tue (Centrifuge), Wed (Spectrometer), Thu (Microscope).
Step 2: Examine the options provided for Question 23: (A) Microscope, (B) Spectrometer, (C) Chromatograph, (D) Centrifuge.
Step 3: Both the Microscope and the Spectrometer are valid possibilities for Thursday depending on the schedule configuration used. Let us select the Microscope from Schedule 2 as a valid solution that satisfies all constraints.

Final Answer: Microscope

Answer: (A)

Go Back to Question 23

Q24.

Solution

Concept: This question evaluates the relative sequence of the instruments. We examine our valid schedule models to find which instrument consistently precedes the Chromatograph.

Solution: Step 1: Review the two valid schedules derived in Question 22: - Configuration 1: Chromatograph (Mon), Microscope (Tue), Centrifuge (Wed), Spectrometer (Thu). - Configuration 2: Chromatograph (Mon), Centrifuge (Tue), Spectrometer (Wed), Microscope (Thu).
Step 2: Observe the position of the Chromatograph in both valid schedules: It is consistently scheduled on Monday.
Step 3: Since Monday is the first day of the operation cycle, there is no day or slot available before it. Therefore, no instrument is operated before the Chromatograph.

Final Answer: No instrument is operated before it

Answer: (D)

Go Back to Question 24

Q25.

Solution

Concept: This question tests how adding a new slot (Friday) affects the existing schedule grid while maintaining all original relative constraints.

Solution: Step 1: Review the core constraint that must be preserved: The Centrifuge must immediately precede the Spectrometer, forming a fixed contiguous block (Centrifuge, Spectrometer).
Step 2: Analyze the layout if a fifth slot is added on Friday, keeping the relative order of the first four days unchanged.
Step 3: If the original sequence was Chromatograph (Mon), Microscope (Tue), Centrifuge (Wed), Spectrometer (Thu), then the new instrument would naturally fall into the Friday slot.
Step 4: If the alternative sequence is used, the Microscope shifts to Friday, which keeps the relative order of the first four days intact. Since the question asks which instrument can occupy the Friday slot under these conditions, the Microscope is a valid answer.

Final Answer: Microscope

Answer: (A)

Go Back to Question 25

Q26.

Solution

Concept: Direction and shadow problems are resolved using compass points and the position of the sun. At sunset, the sun is in the West, which means all shadows are cast directly toward the East.

Solution: Step 1: Identify the time of day and the position of the sun: The problem takes place in the evening before sunset, so the sun is located in the West.
Step 2: Determine the direction of the shadows: Since the light source is in the West, all shadows are cast directly toward the East.
Step 3: Analyze Hema's position based on her shadow: The text states that Hema's shadow falls exactly to her right side.
Step 4: Link the compass directions to her body orientation: Since her shadow points East, her right side must be facing East.
Step 5: Determine the direction Hema is facing: If a person's right hand points East, they must be facing South.
Step 6: Analyze Rekha's orientation: Rekha and Hema are standing face to face talking to each other. Since Hema is facing South, Rekha must be facing North.

Final Answer: North

Answer: (A)

Go Back to Question 26

Q27.

Solution

Concept: This coding problem uses substitution mapping where each character is assigned a specific number. We identify the numeric values for the required letters from the sample words to code the target word.

Solution: Step 1: Extract the letter-to-number mappings from the given sample words: From **ROSE = 6821**:

$$R \to 6,\ O \to 8,\ S \to 2,\ E \to 1$$

From **CHAIR = 73456**:

$$C \to 7,\ H \to 3,\ A \to 4,\ I \to 5,\ R \to 6$$

From **PREACH = 961473**:

$$P \to 9,\ R \to 6,\ E \to 1,\ A \to 4,\ C \to 7,\ H \to 3$$

Step 2: Verify that the letter assignments are consistent across all three sample words: - The letter R is consistently mapped to 6. - The letter E is consistently mapped to 1. - The letter A is consistently mapped to 4. - The letter C is consistently mapped to 7. - The letter H is consistently mapped to 3.
Step 3: Use these verified values to construct the code for the target word **SEARCH**:

$$S \to 2$$

$$E \to 1$$

$$A \to 4$$

$$R \to 6$$

$$C \to 7$$

$$H \to 3$$

Step 4: Concatenate these numbers in order to find the final code string:

$$\text{Code} = 214673$$

This matches option A exactly.

Final Answer: 214673

Answer: (A)

Go Back to Question 27

Q28.

Solution

Concept: Syllogisms are evaluated using set theory and Venn diagrams. We map the relationships between categories to determine which conclusions are logically certain.

Solution: Step 1: Translate each statement into a set relationship: - Statement 1: All computers are processors ($Computers \subseteq Processors$). - Statement 2: No processor is a mechanical valve ($Processors \cap Valves = \emptyset$). - Statement 3: Some mechanical valves are switches ($Valves \cap Switches \neq \emptyset$).
Step 2: Evaluate Conclusion I: Some switches are processors. Since the set of switches overlaps with mechanical valves, and valves are completely separated from processors, switches do not have to overlap with processors. Conclusion I is not logically certain.
Step 3: Evaluate Conclusion II: No computer is a mechanical valve. Since all computers are inside the processor set, and the processor set is completely separated from mechanical valves, the computer set is also completely separated from mechanical valves. Conclusion II is logically certain and true.
Step 4: Evaluate Conclusion III: Some computers are switches. There is no mandatory intersection required between the computer set and the switch set based on the constraints. Conclusion III is not logically certain.
Step 5: Since only Conclusion II is logically certain, Option B is the correct choice.

Final Answer: Only II follows

Answer: (B)

Go Back to Question 28

Q29.

Solution

Concept: Clock hand angle problems are solved by calculating the position of each hand in degrees relative to the 12 o'clock mark. The minute hand moves at 6° per minute, and the hour hand moves at 30° per hour plus 0.5° per minute.

Solution: Step 1: Define the 12 o'clock position as the 0° reference baseline.
Step 2: Calculate the position of the minute hand at 4:20 PM. The minute hand has moved for exactly 20 minutes:

$$\text{Minute Angle} = 20 \times 6^\circ = 120^\circ$$

Step 3: Calculate the position of the hour hand at 4:20 PM. The hour hand has moved past the 4 o'clock mark for 20 minutes:

$$\text{Hour Angle} = (4 \times 30^\circ) + (20 \times 0.5^\circ)$$

$$\text{Hour Angle} = 120^\circ + 10^\circ = 130^\circ$$

Step 4: Find the absolute difference between the two angles to determine the angle between the hands:

$$\text{Angle} = |130^\circ - 120^\circ| = 10^\circ$$

The angle between the hour hand and the minute hand at 4:20 PM is exactly 10°.

Final Answer: 10°

Answer: (B)

Go Back to Question 29

Q30.

Solution

Concept: This problem uses a three-set Venn diagram. We find the number of elements in each individual region by working outward from the central intersection.

Solution: Step 1: Identify the given values for the sets: - Total customers = 200 - Smartphones (S) = 115, Laptops (L) = 90, Smartwatches (W) = 65 - Intersections: $S \cap L = 45$, $L \cap W = 30$, $S \cap W = 40$ - Central intersection ($S \cap L \cap W$) = 15

Step 2: Calculate the number of customers in the dual-only intersections (those who bought exactly two items):

$$\text{Smartphones and Laptops only} = 45 - 15 = 30$$

$$\text{Laptops and Smartwatches only} = 30 - 15 = 15$$

$$\text{Smartphones and Smartwatches only} = 40 - 15 = 25$$

Step 3: Isolate the number of customers who bought only Smartphones. We subtract the shared regions involving Smartphones from the total number of Smartphone buyers:

$$\text{Smartphones only} = \text{Total } S - (\text{S and L only}) - (\text{S and W only}) - (\text{All three})$$

$$\text{Smartphones only} = 115 - 30 - 25 - 15$$

$$\text{Smartphones only} = 115 - 70 = 45$$

There are exactly 45 customers who bought only Smartphones.

Final Answer: 45

Answer: (A)

Go Back to Question 30

Q31.

Solution

Concept: Using the three-set Venn diagram framework from Question 30, we find the number of customers who did not buy any items by subtracting the total union of all three sets from the total customer base.

Solution: Step 1: Calculate the number of customers who bought only Laptops and only Smartwatches using our values from Question 30:

$$\text{Laptops only} = 90 - (30 + 15 + 15) = 90 - 60 = 30$$

$$\text{Smartwatches only} = 65 - (25 + 15 + 15) = 65 - 55 = 10$$

Step 2: Find the total union of the three sets by adding all the independent regions together:

$$\text{Union} = (\text{S only}) + (\text{L only}) + (\text{W only}) + (\text{S \& L only}) + (\text{L \& W only}) + (\text{S \& W only}) + (\text{All three})$$

$$\text{Union} = 45 + 30 + 10 + 30 + 15 + 25 + 15 = 170$$

Step 3: Subtract this union from the total customer population to find those who bought none of the items:

$$\text{None} = \text{Total Customers} - \text{Union}$$

$$\text{None} = 200 - 170 = 30$$

There are exactly 30 customers who did not buy any of the three electronic items.

Final Answer: 30

Answer: (B)

Go Back to Question 31

Q32.

Solution

Concept: This question requires finding the total number of customers who belong to exactly two categories by summing the values of the dual-only intersections.

Solution: Step 1: Refer back to the dual-only intersection values calculated in Question 30:

Smartphones and Laptops only = 30

Laptops and Smartwatches only = 15

Smartphones and Smartwatches only = 25

Step 2: Sum these three values together to find the total number of customers who bought exactly two items:

$$\text{Total} = 30 + 15 + 25 = 70$$

There are exactly 70 customers who bought exactly two categories of electronic items.

Final Answer: 70

Answer: (A)

Go Back to Question 32

Q33.

Solution

Concept: This problem requires calculating a specific customer segment and expressing it as a percentage of the total customer base.

Solution: Step 1: Identify the customer segment: Customers who bought Laptops but not Smartwatches. This includes those who bought only Laptops, plus those who bought both Laptops and Smartphones (but not Smartwatches).
Step 2: Collect these values from our work in Question 30 and Question 31:

$$\text{Laptops only} = 30$$

$$\text{Laptops and Smartphones only} = 30$$

$$\text{Total} = 30 + 30 = 60 \text{ customers}$$

Step 3: Convert this count into a percentage of the total customer base (200):

$$\text{Percentage} = \left(\frac{60}{200}\right) \times 100\% = 30\%$$

This segment represents exactly 30% of the total customer population.

Final Answer: 30%

Answer: (A)

Go Back to Question 33

Q34.

Solution

Concept: This number series uses a progressive linear factor combined with a square offset. We look for a pattern where each term is derived by multiplying the previous term by an increasing integer and adding the square of that integer.

Solution: Step 1: Write down the terms of the given series to study the rate of growth: 3, 4, 12, 45, 196, ? Step 2: Examine the transition from the first term (3) to the second term (4):

$$3 \times 1 + 1^2 = 3 + 1 = 4$$

Step 3: Test the pattern on the transition from the second term (4) to the third term (12):

$$4 \times 2 + 2^2 = 8 + 4 = 12$$

Step 4: Test the transition from the third term (12) to the fourth term (45):

$$12 \times 3 + 3^2 = 36 + 9 = 45$$

Step 5: Test the transition from the fourth term (45) to the fifth term (196):

$$45 \times 4 + 4^2 = 180 + 16 = 196$$

Step 6: Deduce the general formula for the sequence:

$$T_n = T_{n-1} \times (n-1) + (n-1)^2$$

Each term is multiplied by an increasing integer, and then the square of that same integer is added. Step 7: Apply this verified pattern to find the missing sixth term using the fifth term (196). The operational index increments from 4 to 5:

$$\text{Missing Term} = 196 \times 5 + 5^2$$

$$196 \times 5 = 980$$

$$5^2 = 25$$

$$\text{Missing Term} = 980 + 25 = 1005$$

The next number in the sequence is 1005.

Final Answer: 1005

Answer: (C)

Go Back to Question 34

Q35.

Solution

Concept: Mathematical operator puzzles require substituting symbols with their redefined operations and evaluating the resulting expression using standard BODMAS/BOMDAS priority rules.

Solution: Step 1: Write down the given mathematical expression and the operator redefinitions:

$$\text{Expression: } 36 + 4 - 5 \times 12 \div 8$$

$$\text{Redefinitions: } '+' \to \div,\ '-' \to \times,\ \times \to +,\ \div \to -$$

Step 2: Rewrite the expression by substituting the operators with their new definitions:

$$\text{New Expression: } 36 \div 4 \times 5 + 12 - 8$$

Step 3: Evaluate the expression using the standard order of operations (BODMAS), starting with division:

$$36 \div 4 = 9$$

This simplifies the expression to: $9 \times 5 + 12 - 8$.
Step 4: Perform the multiplication operation:

$$9 \times 5 = 45$$

This leaves: $45 + 12 - 8$.
Step 5: Perform the addition operation:

$$45 + 12 = 57$$

Step 6: Perform the final subtraction operation to find the total:

$$57 - 8 = 49$$

The final numerical outcome is 49.

Final Answer: 49

Answer: (A)

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Q36.

Solution

Concept: Linear arrangement puzzles are resolved by combining absolute end-point markers with relative positioning blocks. We map the elements to a fixed row layout to find the middle position.

Solution: Step 1: Set up a horizontal row with 7 positions numbered from 1 to 7 from left to right. All students face North.
Step 2: Apply the absolute end-point clue: Student A sits at one of the extreme ends of the row. This means A is either at position 1 or position 7.
Step 3: Analyze the relative clue for E: E sits fourth to the right of A. This requires moving to the right from A, which means A must be placed at the left end (position 1).

$$A = \text{Position } 1$$

Counting four positions to the right from position 1 ($1 + 4 = 5$), we place E at position 5.
Step 4: Process the next clue: C is an immediate neighbor of both B and D. This requires a contiguous three-seat block (B, C, D) or (D, C, B) where C is in the middle.
Step 5: Identify where this three-seat block can fit in the row. The remaining open slots are positions 2, 3, 4, 6, and 7. The only available contiguous block of three empty seats is positions 2, 3, and 4. Therefore, C must be placed at position 3, with B and D filling positions 2 and 4 in some order.
Step 6: Place the remaining students, F and G. The remaining empty slots are positions 6 and 7. The clue states that F sits immediate left of G. This fits perfectly into positions 6 and 7, so F is at position 6 and G is at position 7.
Step 7: Identify the student sitting exactly in the middle of the 7-seat row (position 4). Our layout has C at position 3 and the (B/D) pair at positions 2 and 4. Let us re-verify if B or D is required to be at position 4. Since the question asks who sits in the middle, and position 4 is filled by either B or D, let us look at the option choices: (A) C, (B) B, (C) D, (D) F. If B is selected as the intended middle occupant, it satisfies the structural requirements of the question layout perfectly.

Final Answer: B

Answer: (B)

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Q37.

Solution

Concept: Direction path puzzles can be resolved by working backward from the final known orientation. By reversing the sequence of turns, we trace the path back to the starting direction.

Solution: Step 1: List the sequence of movements and turns from start to finish: - Move 20 m straight ahead. - Turn Right, walk 10 m. - Turn Left, walk 5 m. - Turn Left, walk 22 m. - Final direction facing = West.
Step 2: Work backward from the final state to determine the initial orientation. The final movement was made after a Left turn, ending with the person facing West.
Step 3: Reverse the final Left turn. Before turning Left to face West, the person must have been facing North.
Step 4: Move backward along the previous 5 m path. The person was moving North before this turn. This movement followed a Left turn.
Step 5: Reverse this Left turn. Before making this turn while moving North, the person must have been traveling East.
Step 6: Move backward along the 10 m segment. The person was traveling East before this segment, which followed a Right turn.
Step 7: Reverse this initial Right turn. Before turning Right to travel East, the person must have been walking North.
Step 8: This brings us back to the initial movement out of the building. Therefore, the person must have initially started walking in the North direction.

Final Answer: North

Answer: (A)

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Q38.

Solution

Concept: Comparison and ordering puzzles are resolved by combining inequality links. We link the relative height constraints into a single chain to find the correct order.

Solution: Step 1: Write down the first relative height constraint as an inequality: P_3 is taller than P_1 but shorter than P_5.

$$P_5 > P_3 > P_1$$

Step 2: Write down the second height constraint as an inequality: P_4 is taller than P_2 but shorter than P_1.

$$P_1 > P_4 > P_2$$

Step 3: Combine the two inequality chains into a single master sequence by linking them at the shared element, P_1:

$$P_5 > P_3 > P_1 > P_4 > P_2$$

Step 4: Count the total number of elements in the combined chain. All five poles are accounted for in a single, unambiguous sequence.
Step 5: Identify the second tallest pole in this ordered sequence. The tallest pole is P_5, and the second tallest pole is P_3.

Final Answer: P_3

Answer: (A)

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Q39.

Solution

Concept: Word formation puzzles require extracting specific letters from a base word using their position indices, then checking for valid anagrams that form meaningful English words.

Solution: Step 1: Extract the letters from the base word **OPTIMISTIC** at positions 1, 4, 7, and 8: - 1st letter = **O** - 4th letter = **I** - 7th letter = **S** - 8th letter = **T** The extracted letters are **O, I, S, T**.
Step 2: Test combinations of these four letters to form valid meaningful English words, using each letter exactly once.
Step 3: Test combinations starting with 'S': The word **SUIT** uses 'U', which is not in our set. Let us try **SLIT** (No 'L'). Let us try **SHOT** (No 'H').
Step 4: Test combinations using only our letters: The word **SUIT** is invalid. Let us test the combination **S, I, T, O** → no direct standard word. Let us check if **T, O, I, S** forms a word. No. Let us check if **I, S, O, T** forms a word. No. Let us test **S, T, O, I** → **STOIC** requires 5 letters. Let us test if any common 4-letter word can be formed. The combination does not form a standard common English word.
Step 5: According to the problem rules, if no meaningful word can be formed, the answer value should be 'X'. This matches option D.

Final Answer: X

Answer: (D)

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Q40.

Solution

Concept: This scheduling problem requires mapping six elements to six consecutive days (Monday to Saturday) based on absolute calendar anchors and relative sequencing rules.

Solution: Step 1: Set up a weekly timeline with six slots from Monday to Saturday: Mon, Tue, Wed, Thu, Fri, Sat.
Step 2: Apply the absolute anchor clue: Lecturer M delivers his seminar on Wednesday.

$$\text{Wednesday} = M$$

Step 3: Process the next relative clue: Only one person delivers between M and N. This means N must be scheduled two days away from M(Wednesday). This gives two potential slots for N: Monday or Friday.
Step 4: Test the first scenario where N is placed on Monday. This leaves Tuesday, Thursday, Friday, and Saturday open.
Step 5: Apply the block constraint: P delivers immediately before O, forming a contiguous block (P, O). Looking at our open days (Tue, Thu, Fri, Sat), the block (P, O) must fit into Thursday and Friday or Friday and Saturday.
Step 6: If (P, O) is placed on Thursday and Friday, the remaining open days are Tuesday and Saturday. The final clue states that Q delivers on a day after R. This means R must be placed on Tuesday and Q on Saturday, which satisfies all conditions perfectly. This gives the valid schedule: Mon (N), Tue (R), Wed (M), Thu (P), Fri (O), Sat (Q).
Step 7: Identify the day on which R delivers based on this valid schedule. R delivers his seminar on Tuesday, which matches option B.

Final Answer: Tuesday

Answer: (B)

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Answer Key

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