CAT Data Interpretation and Logical Reasoning Sample Paper – 2

Duration: 40 Minutes **Maximum Marks: 66**

Instructions

- This paper contains **22** questions modelled on the Data Interpretation and Logical Reasoning section of **CAT**, mixing single-correct **MCQs** and **TITA** (Type-In-The-Answer) questions.
- Each correct answer carries **+3 marks**. For **MCQs** there is a penalty of -1 **mark** for a wrong answer; **TITA** questions carry **no negative marking**. Unattempted questions score 0.
- For an MCQ, exactly **one** option is correct. For a TITA question, work out the numeric value and type it in (no options are given).
- A simple **on-screen calculator** is provided in the actual test interface; personal calculators, log tables and mobile phones are strictly prohibited.
- Recommended time is **40 minutes**, matching the real CAT sectional limit.

Section: Data Interpretation and Logical Reasoning

Directions for Q1 to Q5: Read the information below and answer the questions that follow.

The table below shows placement statistics for the graduating batch of 2023 across five B.Tech engineering branches — Computer Science (CS), Electronics & Communication (ECE), Mechanical (ME), Civil (CE), and Chemical (CH) — at a premier technological institute. The total number of eligible students across all five branches combined is 600.

Branch	Eligible Students	Students Placed	Average CTC (₹ LPA)	Recruiters
CS	180	162	24	45
ECE	140	119	18	34
ME	120	90	12	30
CE	90	63	10	15
CH	70	56	14	16

Q1. Which engineering branch recorded the second-highest placement percentage (defined as $\frac{\text{Students Placed}}{\text{Eligible Students}} \times 100$) in 2023?

(A) CS

(B) ECE

(C) Chemical (CH)

(D) Mechanical (ME)

Q2. What is the overall placement percentage of the institute across all five branches combined, rounded to the nearest integer?

(TITA — type in the answer; no negative marking)

Q3. What is the ratio of the number of unplaced students in Mechanical (ME) to the number of unplaced students in Chemical (CH)?

(A) 15 : 7

(B) 10 : 7

(C) 15 : 8

(D) 9 : 5

Q4. What is the absolute difference between the total salary offered to all placed students in CS and the total salary offered to all placed students in ECE, expressed in ₹ Lakhs?

(TITA — type in the answer; no negative marking)

Q5. In which branch is the average number of placed students per recruiter the highest?

(A) CS

(B) ECE

(C) Civil (CE)

(D) Chemical (CH)

Directions for Q6 to Q9: Read the information below and answer the questions that follow.

Six research scholars — P, Q, R, S, T, and U — present their doctoral theses over six consecutive time slots on a single day, numbered Slot 1 to Slot 6 (from 9:00 AM to 3:00 PM, one presentation per slot). Each scholar belongs to a different research discipline among AI, Robotics, Cybersecurity, Data Science, Blockchain, and Quantum Computing. The schedule obeys the following conditions:

- R presents AI in Slot 2.
- Exactly two presentations occur between R's presentation and T's presentation, and T presents later than R.
- S belongs to Cybersecurity, and presents immediately before the scholar presenting Robotics.
- Q presents immediately after S, but neither Q nor S presents in Slot 1.
- P presents earlier than U, and the scholar presenting Data Science presents in Slot 1.
- U does not present Quantum Computing.

Q6. Which research topic is presented by scholar T?

(A) Blockchain

(B) Quantum Computing

(C) Robotics

(D) Data Science

Q7. Who presents immediately after the scholar presenting Robotics?

(A) R

(B) S

(C) T

(D) U

Q8. How many scholars present between P and T?
(TITA — type in the answer; no negative marking)

Q9. Which of the following scholar–discipline pairs is correct?

(A) U – Quantum Computing

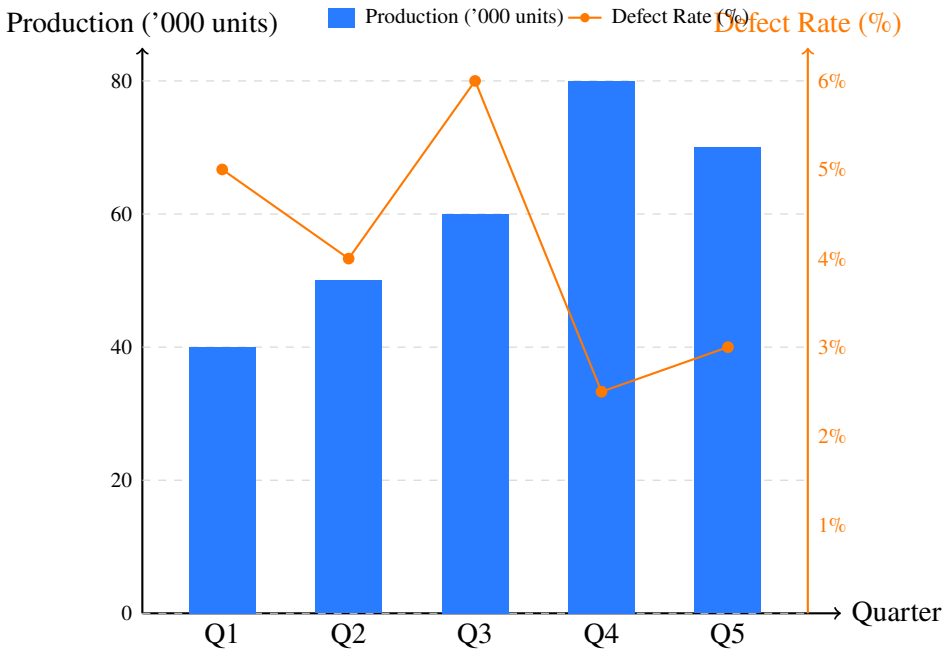
(B) Q – Cybersecurity

(C) P – Data Science

(D) S – Robotics

Directions for Q10 to Q13: Read the information below and answer the questions that follow.

An electric vehicle (EV) manufacturing company tracks its Quarterly Production (in thousands of units) and the percentage of produced vehicles that failed initial quality inspection (Defect Rate %) across five consecutive quarters, Q1 to Q5.



Q10. What is the total number of defective vehicles produced across all five quarters combined?

(TITA — type in the answer; no negative marking)

Q11. In which quarter was the number of defect-free (non-defective) vehicles produced the highest?

(A) Q2

(B) Q3

(C) Q4

(D) Q5

Q12. By what percentage did the production volume increase from Q1 to Q4?

(A) 50%

(B) 75%

(C) 100%

(D) 120%

Q13. Which two quarters recorded the exact same absolute number of defective vehicles?

(A) Q1 and Q3

(B) Q2 and Q5

(C) Q2 and Q4

(D) Q3 and Q5

Directions for Q14 to Q18: Read the information below and answer the questions that follow.

A consulting firm is forming a specialized 5-member Taskforce from two pools of personnel: Pool A consisting of four Senior Consultants (A, B, C, D) and Pool B consisting of four Junior Analysts (P, Q, R, S). The selection must adhere strictly to the following rules:

- The Taskforce must contain exactly 3 Senior Consultants and exactly 2 Junior Analysts.
- A and P cannot be selected together on the same team.
- If B is selected, then R must also be selected.
- C and D cannot both be selected together on the same team.
- If S is selected, then Q cannot be selected.

Q14. Which of the following candidates must be included in the Taskforce under all valid selections?

(A) C

(B) D

(C) R

(D) Q

Q15. If candidate C is selected and candidate S is not selected, which of the following represents the complete Taskforce?

(A) {A, B, C, P, R}

(B) {A, B, C, Q, R}

(C) {A, B, D, Q, R}

(D) {A, B, C, R, S}

Q16. In total, how many distinct valid 5-member Taskforces can be formed?
(TITA — type in the answer; no negative marking)

Q17. Which of the following candidates can NEVER be selected on any valid Taskforce?

(A) P

(B) Q

(C) S

(D) D

Q18. If candidate D is selected on the Taskforce, which of the following statements must be true?

(A) C is also selected.

(B) A is not selected.

(C) Exactly one among Q and S is selected along with R.

(D) Both Q and S are selected.

Directions for Q19 to Q22: Read the information below and answer the questions that follow.

An e-commerce logistics enterprise operates four fulfillment centers — W1, W2, W3, and W4. The table below provides the total monthly operational cost (in ₹ Lakhs) and the total volume of packages shipped (in thousands) for each center during May 2023.

Fulfillment Center	Operational Cost (₹ Lakhs)	Packages Shipped (thousands)
W1	120	40
W2	150	60
W3	90	20
W4	160	80

Additional operational details:

- Each fulfillment center handles two categories of shipments: Express and Standard.
- At center W4, exactly 25% of the total shipped packages are Express shipments.

Q19. Which fulfillment center achieved the lowest operational cost per package shipped?

(A) W1

(B) W2

(C) W3

(D) W4

Q20. How many packages (in exact units) shipped by center W4 were Express shipments?

(TITA — type in the answer; no negative marking)

Q21. What is the ratio of the total operational cost of W2 and W3 combined to the total operational cost of W1 and W4 combined?

(A) 5 : 7

(B) 6 : 7

(C) 3 : 4

(D) 7 : 8

Q22. If center W3 reduces its operational cost by 20% while handling the exact same volume of packages, what would be its new operational cost per package shipped?

(A) ₹ 320

(B) ₹ 350

(C) ₹ 360

(D) ₹ 400

Detailed Solutions

Q1.

Solution

Concept: This question tests ratio and percentage evaluation from tabular data. Placement percentage is computed as $\frac{\text{Students Placed}}{\text{Eligible Students}} \times 100$. Ranking the branches reveals the second-highest performer. **Solution:**

(a) Step 1: Compute the placement percentage for each branch:

(b) CS: $\frac{162}{180} \times 100 = 90\%$.

(c) ECE: $\frac{119}{140} \times 100 = 85\%$.

(d) ME: $\frac{90}{120} \times 100 = 75\%$.

(e) CE: $\frac{63}{90} \times 100 = 70\%$.

(f) CH: $\frac{56}{70} \times 100 = 80\%$.

(g) Step 2: Arrange the placement percentages in descending order: 90% (CS) > 85% (ECE) > 80% (CH) > 75% (ME) > 70% (CE).

(h) Step 3: The highest percentage is 90% (CS), and the second-highest percentage is 85%, corresponding to ECE.

Final Answer: ECE

Answer: (B)

Go Back to Question 1

Q2.

Solution

Concept: Overall placement percentage requires aggregating total placed students and total eligible students across all branches before taking the percentage ratio. **Solution:**

(a) Step 1: Sum the total placed students across all five branches: $162+119+90+63+56 = 490$.

(b) Step 2: Sum the total eligible students across all five branches: $180+140+120+90+70 = 600$.

(c) Step 3: Calculate the overall percentage: $\frac{490}{600} \times 100 = \frac{490}{6} = 81.666\ldots\%$.

(d) Step 4: Rounding 81.67% to the nearest integer yields 82.

Final Answer: 82

Answer: (82)

Go Back to Question 2

Q3.

Solution

Concept: Number of unplaced students in a branch equals Eligible Students minus Students Placed. Ratios must be simplified by dividing both terms by their highest common factor (HCF).
Solution:

(a) Step 1: Compute unplaced students in ME: $120 - 90 = 30$.

(b) Step 2: Compute unplaced students in CH: $70 - 56 = 14$.

(c) Step 3: Form the ratio ME to CH: $30 : 14$.

(d) Step 4: Divide both terms by the HCF (2): $\frac{30}{2} : \frac{14}{2} = 15 : 7$.

Final Answer: $\boxed{15 : 7}$

Answer: (A)

Go Back to Question 3

Q4.

Solution

Concept: Total salary offered to a branch equals Number of Placed Students multiplied by Average CTC per student. **Solution:**

(a) Step 1: Compute total salary offered to CS students: $162 \times 24 = 3{,}888$ Lakhs.

(b) Step 2: Compute total salary offered to ECE students: $119 \times 18 = 2{,}142$ Lakhs.

(c) Step 3: Compute the absolute difference: $3{,}888 - 2{,}142 = 1{,}746$ Lakhs.

Final Answer: $\boxed{1746}$

Answer: (1746)

Go Back to Question 4

Q5.

Solution

Concept: Average placed students per recruiter is found by dividing Students Placed by Number of Recruiters for each branch. **Solution:**

(a) Step 1: CS: $\frac{162}{45} = 3.60$.

(b) Step 2: ECE: $\frac{119}{34} = 3.50$.

(c) Step 3: ME: $\frac{90}{30} = 3.00$.

(d) Step 4: CE: $\frac{63}{15} = 4.20$.

(e) Step 5: CH: $\frac{56}{16} = 3.50$.

(f) Step 6: Comparing the ratios, Civil (CE) achieves the highest value at 4.20.

Final Answer: Civil (CE)

Answer: (C)

Go Back to Question 5

Q6.

Solution

Concept: Linear Scheduling puzzle solved by sequential deduction of time slots and discipline constraints. **Solution:**

(a) Step 1: Clue 1 fixes R at Slot 2 presenting AI. Clue 2 states exactly two presentations between R (Slot 2) and T (later than R), fixing T at Slot 5 (2 + 3 = 5).

(b) Step 2: Clue 4 states Q presents immediately after S, neither being in Slot 1. Available slots are 1, 3, 4, 6. The only consecutive pair available outside Slot 1 is (3, 4). Thus, Slot 3 = S and Slot 4 = Q.

(c) Step 3: Clue 5 states P presents earlier than U. The remaining slots are 1 and 6, so Slot 1 = P and Slot 6 = U. Clue 5 also fixes Data Science at Slot 1 (P).

(d) Step 4: Clue 3 states S (Slot 3) belongs to Cybersecurity and presents immediately before Robotics. Therefore, Q (Slot 4) presents Robotics.

(e) Step 5: The remaining disciplines for Slot 5 (T) and Slot 6 (U) are Blockchain and Quantum Computing. Clue 6 rules out Quantum Computing for U (Slot 6), fixing U with Blockchain and T with Quantum Computing.

Final Answer: Quantum Computing

Answer: (B)

Go Back to Question 6

Q7.

Solution

Concept: Direct retrieval of sequence adjacency from the resolved schedule. **Solution:**

(a) Step 1: From the resolved schedule, Q presents Robotics in Slot 4.

(b) Step 2: The slot immediately following Slot 4 is Slot 5.

(c) Step 3: Slot 5 is occupied by T presenting Quantum Computing.

Final Answer: $\boxed{T}$

Answer: (C)

Go Back to Question 7

Q8.

Solution

Concept: Counting intermediate positions in a linear sequence. **Solution:**

(a) Step 1: Scholar P presents in Slot 1. Scholar T presents in Slot 5.

(b) Step 2: The slots strictly between Slot 1 and Slot 5 are Slots 2, 3, and 4.

(c) Step 3: These three slots are occupied by R, S, and Q respectively, totaling exactly 3 scholars.

Final Answer: $\boxed{3}$

Answer: (3)

Go Back to Question 8

Q9.

Solution

Concept: Verification of individual scholar–discipline assignments against the resolved master schedule. **Solution:**

(a) Step 1: Review the complete resolved schedule: Slot 1: P (Data Science); Slot 2: R (AI); Slot 3: S (Cybersecurity); Slot 4: Q (Robotics); Slot 5: T (Quantum Computing); Slot 6: U (Blockchain).

(b) Step 2: Check option (A): U presents Blockchain, not Quantum Computing (Incorrect).

(c) Step 3: Check option (B): Q presents Robotics, not Cybersecurity (Incorrect).

(d) Step 4: Check option (C): P presents Data Science (Correct).

(e) Step 5: Check option (D): S presents Cybersecurity, not Robotics (Incorrect).

Final Answer: P – Data Science

Answer: (C)

Go Back to Question 9

Q10.

Solution

Concept: Number of defective vehicles equals Production Volume multiplied by the Defect Rate percentage. Note that 1 thousand units = 1,000. **Solution:**

(a) Step 1: Q1 defective units: $40{,}000 \times 5\% = 2{,}000$.

(b) Step 2: Q2 defective units: $50{,}000 \times 4\% = 2{,}000$.

(c) Step 3: Q3 defective units: $60{,}000 \times 6\% = 3{,}600$.

(d) Step 4: Q4 defective units: $80{,}000 \times 2.5\% = 2{,}000$.

(e) Step 5: Q5 defective units: $70{,}000 \times 3\% = 2{,}100$.

(f) Step 6: Sum across all quarters: $2{,}000 + 2{,}000 + 3{,}600 + 2{,}000 + 2{,}100 = 11{,}700$.

Final Answer: 11700

Answer: (11700)

Go Back to Question 10

Q11.

Solution

Concept: Defect-free (good) vehicles equals Total Production minus Defective Vehicles. **Solution:**

(a) Step 1: Q1 good units: 40,000 – 2,000 = 38,000.

(b) Step 2: Q2 good units: 50,000 – 2,000 = 48,000.

(c) Step 3: Q3 good units: 60,000 – 3,600 = 56,400.

(d) Step 4: Q4 good units: 80,000 – 2,000 = 78,000.

(e) Step 5: Q5 good units: 70,000 – 2,100 = 67,900.

(f) Step 6: Comparing these values, Q4 achieves the highest defect-free production at 78,000 units.

Final Answer: Q4

Answer: (C)

Go Back to Question 11

Q12.

Solution

Concept: Percentage increase is evaluated as $\frac{\text{Final Value}-\text{Initial Value}}{\text{Initial Value}} \times 100$. **Solution:**

(a) Step 1: Production in Q1 = 40 thousand units.

(b) Step 2: Production in Q4 = 80 thousand units.

(c) Step 3: Increase = 80 – 40 = 40 thousand units.

(d) Step 4: Percentage increase = $\frac{40}{40} \times 100 = 100\%$.

Final Answer: 100%

Answer: (C)

Go Back to Question 12

Q13.

Solution

Concept: Matching computed absolute quantities across categories. **Solution:**

(a) Step 1: Recall the absolute defective counts: Q1 = 2,000, Q2 = 2,000, Q3 = 3,600, Q4 = 2,000, Q5 = 2,100.

(b) Step 2: Quarters Q1, Q2, and Q4 all share the exact same defective count (2,000 units).

(c) Step 3: Checking the provided options, option (C) lists Q2 and Q4, which correctly identifies a pair with identical defective vehicle counts.

Final Answer: Q2 and Q4

Answer: (C)

Go Back to Question 13

Q14.

Solution

Concept: Logical combination and elimination in team selection. **Solution:**

(a) Step 1: We must select exactly 3 Senior Consultants from {A, B, C, D}. Since C and D cannot be selected together, we can pick at most one of them.

(b) Step 2: To get 3 Senior Consultants, both A and B must be selected in every team. Thus, the Senior Consultant trio is either {A, B, C} or {A, B, D}.

(c) Step 3: Since B is always selected, the conditional rule "If B is selected, then R must also be selected" forces R to be included in every single valid team.

Final Answer: R

Answer: (C)

Go Back to Question 14

Q15.

Solution

Concept: Evaluating team membership under given specific constraints. **Solution:**

(a) Step 1: With C selected, the Senior Consultants must be {A, B, C} (since D cannot be picked alongside C).

(b) Step 2: Since A is selected, P cannot be selected. Since B is selected, R must be selected.

(c) Step 3: We need 2 Junior Analysts. With R mandatory and P excluded, the second analyst must be chosen from {Q, S}.

(d) Step 4: Given the condition that S is not selected, Q must be selected.

(e) Step 5: Therefore, the complete Taskforce is {A, B, C, Q, R}.

Final Answer: $\boxed{\{A, B, C, Q, R\}}$

Answer: (B)

Go Back to Question 15

Q16.

Solution

Concept: Exhaustive enumeration of valid combinations satisfying all constraints. **Solution:**

(a) Step 1: Senior Consultant trios can only be {A, B, C} or {A, B, D} (2 possibilities).

(b) Step 2: For Junior Analysts, R is mandatory (since B is selected) and P is excluded (since A is selected). We need one more analyst from {Q, S}.

(c) Step 3: Selecting Q gives pair {Q, R}. Selecting S gives pair {R, S} (which is valid since Q is omitted).

(d) Step 4: Multiplying Senior combinations (2) by Junior combinations (2) yields $2 \times 2 = 4$ distinct valid teams: {A,B,C,Q,R}, {A,B,C,R,S}, {A,B,D,Q,R}, and {A,B,D,R,S}.

Final Answer: $\boxed{4}$

Answer: (4)

Go Back to Question 16

Q17.

Solution

Concept: Identifying absolute impossibilities derived from mandatory inclusions. **Solution:**

(a) Step 1: As established, candidate A must be included in all valid Taskforces to satisfy the requirement of 3 Senior Consultants without choosing C and D together.

(b) Step 2: The selection rule explicitly states: "A and P cannot be selected together on the same team."

(c) Step 3: Since A is always selected, candidate P can never be selected on any valid team.

Final Answer: $\boxed{P}$

Answer: (A)

Go Back to Question 17

Q18.

Solution

Concept: Deductive verification of conditional statements under a fixed choice. **Solution:**

(a) Step 1: If D is selected, the Senior Consultant trio is {A, B, D}. Thus, C is omitted (ruling out A) and A is selected (ruling out B).

(b) Step 2: As established earlier, the Junior Analyst pair accompanying B and A must be either {Q, R} or {R, S}.

(c) Step 3: In both valid pairs, candidate R is present alongside exactly one candidate chosen from {Q, S}.

(d) Step 4: Therefore, statement (C) must always hold true.

Final Answer: Exactly one among Q and S is selected along with R

Answer: (C)

Go Back to Question 18

Q19.

Solution

Concept: Unit operational cost is calculated as $\frac{\text{Total Cost}}{\text{Total Packages Shipped}}$. Note that since Cost is in Lakhs (100,000) and Packages are in thousands (1,000), dividing Cost by Packages and multiplying by 100 gives the cost in ₹ per package. **Solution:**

(a) Step 1: W1 unit cost: $\frac{120}{40} \times 100 = |\,300$.

(b) Step 2: W2 unit cost: $\frac{150}{60} \times 100 = |\,250$.

(c) Step 3: W3 unit cost: $\frac{90}{20} \times 100 = |\,450$.

(d) Step 4: W4 unit cost: $\frac{160}{80} \times 100 = |\,200$.

(e) Step 5: Comparing all centers, W4 operates at the lowest unit cost of ₹200 per package.

Final Answer: W4

Answer: (D)

Go Back to Question 19

Q20.

Solution

Concept: Exact percentage evaluation from volume totals in thousands. **Solution:**

(a) Step 1: Total packages shipped by W4 = 80 thousand = 80,000 packages.

(b) Step 2: Percentage of Express shipments at W4 = 25%.

(c) Step 3: Number of Express packages = $80{,}000 \times 0.25 = 20{,}000$.

Final Answer: 20000

Answer: (20000)

Go Back to Question 20

Q21.

Solution

Concept: Aggregating operational costs and reducing the resulting ratio to lowest terms. **Solution:**

(a) Step 1: Combined operational cost of W2 and W3 = 150 + 90 = 240 Lakhs.

(b) Step 2: Combined operational cost of W1 and W4 = 120 + 160 = 280 Lakhs.

(c) Step 3: Form the ratio: 240 : 280.

(d) Step 4: Divide both terms by their HCF (40): $\frac{240}{40} : \frac{280}{40} = 6 : 7$.

Final Answer: $\boxed{6 : 7}$

Answer: (B)

Go Back to Question 21

Q22.

Solution

Concept: Re-evaluating unit cost after a percentage reduction in total expenditure. **Solution:**

(a) Step 1: Initial operational cost of W3 = 90 Lakhs.

(b) Step 2: Cost reduction = 20% of 90 = 18 Lakhs.

(c) Step 3: New operational cost of W3 = 90 − 18 = 72 Lakhs.

(d) Step 4: Shipped volume remains unchanged at 20 thousand packages.

(e) Step 5: New cost per package = $\frac{72}{20} \times 100 = 3.6 \times 100 = ₹360$.

Final Answer: $\boxed{₹360}$

Answer: (C)

Go Back to Question 22

Answer Key

Q	Ans	Q	Ans	Q	Ans	Q	Ans	Q	Ans
1	B	2	82	3	A	4	1746	5	C
6	B	7	C	8	3	9	C	10	11700
11	C	12	C	13	C	14	C	15	B
16	4	17	A	18	C	19	D	20	20000
21	B	22	C						