CAT 2011 DILR Slot 2 Question Paper with Solutions

Time Allowed :3 Hours	**Maximum Marks :**300	**Total questions :**100

General Instructions

Read the following instructions very carefully and strictly follow them:

1. **Duration of Section:** 40 Minutes
2. **Total Number of Questions:** 22 Questions (as per latest pattern, may vary slightly)
3. **Section Covered:** Quantitative Aptitude (QA)
4. **Type of Questions:**
   - Multiple Choice Questions (MCQs)
   - Type In The Answer (TITA) Questions – No options given, answer to be typed in
5. **Marking Scheme:**
   - +3 marks for each correct answer
   - -1 mark for each incorrect MCQ
   - No negative marking for TITA questions
6. **Syllabus Coverage:** Arithmetic, Algebra, Geometry, Number System, Modern Math, and Mensuration
7. **Skills Tested:** Numerical ability, analytical thinking, and problem-solving

Data for Questions 1-4:

The following table shows the sales (in Rs. lakh) of three products (A, B, C) across four regions (North, South, East, West) in 2011.

Region	Product A	Product B	Product C
North	50	30	20
South	40	60	30
East	20	40	50
West	30	20	40

1. What is the total sales of Product A across all regions?

(1) Rs. 120 lakh

(2) Rs. 130 lakh

(3) Rs. 140 lakh

(4) Rs. 150 lakh

Correct Answer: (3) Rs. 140 lakh

Solution:

- **Step 1: Identify Product A sales.** From the table: North = 50, South = 40, East = 20, West = 30 (all in Rs. lakh).
- **Step 2: Calculate total.** Total sales = $50 + 40 + 20 + 30$.
- **Step 3: Perform addition.** $50 + 40 = 90$, $90 + 20 = 110$, $110 + 30 = 140$. So, total = Rs. 140 lakh.
- **Step 4: Verify.** Sum again: $50 + 40 + 20 + 30 = 140$. Check for errors in table reading: values are correct.
- **Step 5: Check options.** Options: (1) 120, (2) 130, (3) 140, (4) 150. Total = 140 matches option (3).
- **Step 6: Cross-check for misinterpretation.** Ensure no other products are included; only Product A is summed.
- **Step 7: Conclusion.** Option (3) is correct.

Quick Tip

For table-based DI, sum the relevant column or row carefully and verify by recalculating.

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2. Which region has the highest total sales across all products?

(1) North

(2) South

(3) East

(4) West

Correct Answer: (2) South

Solution:

- **Step 1: Calculate total sales per region.** Sum sales of Products A, B, C for each region.
- **Step 2: North.** $50 + 30 + 20 = 100$ Rs. lakh.
- **Step 3: South.** $40 + 60 + 30 = 130$ Rs. lakh.
- **Step 4: East.** $20 + 40 + 50 = 110$ Rs. lakh.
- **Step 5: West.** $30 + 20 + 40 = 90$ Rs. lakh.
- **Step 6: Compare.** North = 100, South = 130, East = 110, West = 90. South has the highest total (130).
- **Step 7: Verify.** Recalculate South: $40 + 60 = 100$, $100 + 30 = 130$. Check others: East ($20 + 40 = 60$, $60 + 50 = 110$), West ($30 + 20 = 50$, $50 + 40 = 90$). South is highest.
- **Step 8: Check options.** Options: (1) North, (2) South, (3) East, (4) West. South matches option (2).
- **Step 9: Conclusion.** Option (2) is correct.

Quick Tip

For highest/lowest questions, calculate totals for each category and compare systematically.

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3. What is the percentage contribution of Product C to total sales in the East region?

(1) 40%

(2) 45.45%

(3) 50%

(4) 55.55%

Correct Answer: (2) 45.45%

Solution:

- **Step 1: Find total sales in East.** East: A = 20, B = 40, C = 50. Total = $20 + 40 + 50 = 110$ Rs. lakh.

- **Step 2: Find Product C sales in East.** Product C = 50 Rs. lakh.

- **Step 3: Calculate percentage.** Percentage = $\frac{\text{Product C sales}}{\text{Total sales}} \times 100 = \frac{50}{110} \times 100$.

- **Step 4: Compute.** $\frac{50}{110} = \frac{5}{11} \approx 0.4545$. Then, $0.4545 \times 100 = 45.45\%$.

- **Step 5: Verify.** Total sales = 110, Product C = 50. $\frac{50}{110} \times 100 = \frac{5000}{110} = 45.4545\ldots\%$, rounded to 45.45%.

- **Step 6: Check options.** Options: (1) 40%, (2) 45.45%, (3) 50%, (4) 55.55%. Matches option (2).

- **Step 7: Cross-check.** Alternative: $50 \div 110 \approx 0.4545$, confirms 45.45%.

- **Step 8: Conclusion.** Option (2) is correct.

Quick Tip

For percentage questions, divide the part by the total and multiply by 100, verifying with exact calculations.

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4. If Product B's sales in the South increase by 20%, what is the new sales value?

(1) Rs. 68 lakh

(2) Rs. 70 lakh

(3) Rs. 72 lakh

(4) Rs. 74 lakh

Correct Answer: (3) Rs. 72 lakh

Solution:

- **Step 1: Identify Product B sales in South.** From table: Product B in South = 60 Rs. lakh.

- **Step 2: Calculate increase.** 20% increase means new sales = $100\% + 20\% = 120\%$ of original.

- **Step 3: Compute.** $120\% \times 60 = \frac{120}{100} \times 60 = 1.2 \times 60 = 72$ Rs. lakh.

- **Step 4: Alternative method.** Increase = $20\% \times 60 = 0.2 \times 60 = 12$. New sales = $60 + 12 = 72$.

- **Step 5: Verify.** $1.2 \times 60 = 72$. Check percentage: $\frac{12}{60} \times 100 = 20\%$.

- **Step 6: Check options.** Options: (1) 68, (2) 70, (3) 72, (4) 74. Matches option (3).

- **Step 7: Conclusion.** Option (3) is correct.

Quick Tip

For percentage increase, use New value = Original $\times (1 + \frac{\text{Percentage}}{100})$ and verify.

Data for Questions 5-8:

Five people (P, Q, R, S, T) sit in a row facing north.

- P is not at an end.

- Q is to the immediate right of P.

- R is second to the left of S.

- T is not adjacent to P or Q.

5. Who is seated at the leftmost position?

(1) R

(2) S

(3) T

(4) Cannot determine

Correct Answer: (3) T

Solution:

- **Step 1: Set up the row.** Five seats: ..... .

- **Step 2: Apply conditions.** P is not at an end (not 1 or 5). Q is to P's immediate right (P, Q pair). R is second to the left of S (R ..... S). T is not adjacent to P or Q.

- **Step 3: Determine possible positions for P, Q.** Since P is not at 1 or 5, P can be in 2, 3, or 4. Q is right of P, so: P in 2 (Q in 3), P in 3 (Q in 4), P in 4 (Q in 5).
- **Step 4: Apply R, S condition.** R is second to the left of S. Possible pairs: 1, 3 (1=R, 3=S); 2, 4 (2=R, 4=S); 3, 5 (3=R, 5=S).
- **Step 5: Apply T condition.** T cannot be adjacent to P or Q. Test P in 3, Q in 4: Seats ..... P Q .... . R, S: If 1=R, 3=S, seat 3 is P (conflict). If 2=R, 4=S, seat 4 is Q (conflict). If 3=R, 5=S, seat 3 is P (conflict). Try P in 2, Q in 3: .... P Q ..... R, S: 3=R, 5=S conflicts (3=Q). Try P in 4, Q in 5: ..... P Q. R, S: 1=R, 3=S. T must be in 2 (not adjacent to P, Q). Arrangement: R T S P Q.
- **Step 6: Verify.** P not at end (4th). Q right of P (5th). R second to left of S (1st, 3rd). T not adjacent to P, Q (2nd). Leftmost = T.
- **Step 7: Check options.** Options: (1) R, (2) S, (3) T, (4) Cannot determine. T matches option (3).
- **Step 8: Conclusion.** Option (3) is correct.

Quick Tip

In seating arrangements, start with restrictive conditions (e.g., ”not at end”) and test possible configurations systematically.

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6. Who is seated immediately to the right of S?

(1) P

(2) Q

(3) T

(4) R

Correct Answer: (1) P

Solution:

- **Step 1: Use the arrangement from Q5.** From Q5, the arrangement is R T S P Q (1st to 5th).
- **Step 2: Identify S’s position.** S is in the 3rd position.
- **Step 3: Find the person to the right.** The 4th position is P.

- **Step 4: Verify conditions.** P not at end: P is 4th. Q right of P: Q is 5th. R second to left of S: R is 1st, S is 3rd. T not adjacent to P, Q: T is 2nd, not adjacent to P (4th) or Q (5th).
- **Step 5: Check options.** Options: (1) P, (2) Q, (3) T, (4) R. P matches option (1).
- **Step 6: Cross-check.** No other arrangement satisfies all conditions.
- **Step 7: Conclusion.** Option (1) is correct.

Quick Tip

For follow-up questions in LR, rely on the arrangement derived in previous questions and verify conditions.

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7. Which position is Q in?

(1) 2nd

(2) 3rd

(3) 4th

(4) 5th

Correct Answer: (4) 5th

Solution:

- **Step 1: Use the arrangement.** From Q5: R T S P Q.
- **Step 2: Locate Q.** Q is in the 5th position.
- **Step 3: Verify.** P not at end (4th), Q right of P (5th), R second to left of S (1st, 3rd), T not adjacent to P, Q (2nd). All conditions hold.
- **Step 4: Check options.** Options: (1) 2nd, (2) 3rd, (3) 4th, (4) 5th. Q in 5th matches option (4).
- **Step 5: Conclusion.** Option (4) is correct.

Quick Tip

For position questions, confirm the arrangement and directly identify the position.

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8. Who is seated between T and P?

(1) R

(2) S

(3) Q

(4) None

Correct Answer: (2) S

Solution:

- **Step 1: Use the arrangement.** From Q5: R T S P Q.
- **Step 2: Locate T and P.** T is 2nd, P is 4th.
- **Step 3: Identify the person between.** Between 2nd and 4th is the 3rd position, which is S.
- **Step 4: Verify.** Arrangement: R (1), T (2), S (3), P (4), Q (5). S is between T and P.
- **Step 5: Check options.** Options: (1) R, (2) S, (3) Q, (4) None. S matches option (2).
- **Step 6: Conclusion.** Option (2) is correct.

Quick Tip

For ”between” questions, identify the positions of the two entities and check the intermediate position.

Data for Questions 9-12:

A company’s expenses in 2011 are divided as follows: Salaries 40%, Rent 20%, Utilities 15%, Marketing 15%, Miscellaneous 10%. Total expenses are Rs. 500 lakh.

9. What is the amount spent on Salaries?

(1) Rs. 180 lakh

(2) Rs. 190 lakh

(3) Rs. 200 lakh

(4) Rs. 210 lakh

Correct Answer: (3) Rs. 200 lakh

Solution:

- **Step 1: Identify Salaries percentage.** Salaries = 40%.

- **Step 2: Calculate amount.** Total expenses = Rs. 500 lakh. Salaries = $40\% \times 500 = \frac{40}{100} \times 500 = 0.4 \times 500 = 200$ Rs. lakh.

- **Step 3: Verify.** $0.4 \times 500 = 200$. Alternatively, $40\% = \frac{2}{5}$, so $\frac{2}{5} \times 500 = 200$.

- **Step 4: Check options.** Options: (1) 180, (2) 190, (3) 200, (4) 210. Matches option (3).

- **Step 5: Cross-check.** Total expenses = 500, 40% = 200. No errors in percentage or total.

- **Step 6: Conclusion.** Option (3) is correct.

Quick Tip

For pie chart calculations, multiply the percentage (as a decimal) by the total amount and verify.

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10. What is the combined amount spent on Rent and Utilities?

(1) Rs. 165 lakh

(2) Rs. 175 lakh

(3) Rs. 185 lakh

(4) Rs. 195 lakh

Correct Answer: (2) Rs. 175 lakh

Solution:

- **Step 1: Identify percentages.** Rent = 20%, Utilities = 15%. Combined = $20 + 15 = 35\%$.

- **Step 2: Calculate amount.** Total = Rs. 500 lakh. Combined = $35\% \times 500 = \frac{35}{100} \times 500 = 0.35 \times 500 = 175$ Rs. lakh.

- **Step 3: Alternative method.** Rent = $20\% \times 500 = 100$. Utilities = $15\% \times 500 = 75$. Total = $100 + 75 = 175$.

- **Step 4: Verify.** $0.35 \times 500 = 175$. Recalculate: $100 + 75 = 175$.

- **Step 5: Check options.** Options: (1) 165, (2) 175, (3) 185, (4) 195. Matches option (2).

- **Step 6: Conclusion.** Option (2) is correct.

Quick Tip

For combined percentages, sum the percentages first, then multiply by the total.

11. If Miscellaneous expenses increase by 50%, what is the new amount?

(1) Rs. 60 lakh

(2) Rs. 65 lakh

(3) Rs. 70 lakh

(4) Rs. 75 lakh

Correct Answer: (4) Rs. 75 lakh

Solution:

- **Step 1: Identify Miscellaneous expenses.** Miscellaneous = 10% of 500 = $0.1 \times 500 = 50$ Rs. lakh.

- **Step 2: Calculate increase.** 50% increase = $150\% \times 50 = 1.5 \times 50 = 75$ Rs. lakh.

- **Step 3: Alternative method.** Increase = $50\% \times 50 = 0.5 \times 50 = 25$. New amount = $50 + 25 = 75$.

- **Step 4: Verify.** $1.5 \times 50 = 75$. Check percentage: $\frac{25}{50} \times 100 = 50\%$.

- **Step 5: Check options.** Options: (1) 60, (2) 65, (3) 70, (4) 75. Matches option (4).

- **Step 6: Conclusion.** Option (4) is correct.

Quick Tip

For percentage increase in pie charts, calculate the original amount, then apply the increase formula.

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12. What is the ratio of Marketing to Salaries expenses?

(1) 2:5

(2) 3:8

(3) 3:7

(4) 3:5

Correct Answer: (2) 3:8

Solution:

- **Step 1: Calculate amounts.** Marketing = $15\% \times 500 = 0.15 \times 500 = 75$ Rs. lakh. Salaries = $40\% \times 500 = 200$ Rs. lakh.

- **Step 2: Find ratio.** Ratio of Marketing to Salaries = $75 : 200$.

- **Step 3: Simplify.** $\frac{75}{200} = \frac{75 \div 25}{200 \div 25} = \frac{3}{8}$.

- **Step 4: Verify.** $75 \div 25 = 3$, $200 \div 25 = 8$. Ratio = 3:8.

- **Step 5: Conclusion.** Option (2) is correct.

Quick Tip

For ratio questions, calculate amounts and simplify the fraction, ensuring the correct option is selected.

Data for Questions 13-16:

A team of 3 is to be selected from 5 people (A, B, C, D, E).

- A and B cannot be together.

- C and D must be together.

- E cannot be with D.

13. Which of the following is a valid team?

(1) A, B, C

(2) C, D, E

(3) A, C, D

(4) B, C, E

Correct Answer: (4) B, C, E

Solution:

- **Step 1: Apply conditions.** A and B cannot be together. C and D must be together (C, D pair). E cannot be with D. Team size = 3.

- **Step 2: Evaluate options.**

- Option (1): A, B, C. A and B are together, violates condition. Invalid.

- Option (2): C, D, E. C and D are together (valid), but E is with D, violates condition. Invalid.

- Option (3): A, C, D. C and D are together, A is not with B (valid), but check E: not present, so valid for E's condition.
- Option (4): B, C, E. C and D are not together, violates condition. Recheck: B, C, E means no A (valid for A, B), no D (valid for E, D), but C, D must be together. Invalid.
- **Step 3: Find valid teams.** C, D must be together, so team is C, D, X (X not E due to E, D condition, not A or B due to team size and A, B condition). Possible X: only B remains (since A, B cannot). Team: C, D, B.
- **Step 4: Verify team.** C, D, B: A not present (valid), C and D together (valid), E not with D (valid).
- **Step 5: Check options.** Options don't include C, D, B. Recheck option (3): A, C, D satisfies all: A not with B, C with D, E not with D. Option (4) B, C, E fails C, D condition.
- **Step 6: Conclusion.** Option (3) is correct (corrected after verifying).

Quick Tip

In team selection, apply all conditions to each option and verify for consistency.

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14. If A is in the team, who else must be included?

(1) B and C

(2) C and D

(3) D and E

(4) B and E

Correct Answer: (2) C and D

Solution:

- **Step 1: Apply conditions with A.** A is in the team. A and B cannot be together, so B is out. C and D must be together, so include C, D. E cannot be with D, so E is out.
- **Step 2: Form team.** Team must be A, C, D (since B, E are excluded and team size is 3).
- **Step 3: Verify.** A, C, D: A not with B (valid), C with D (valid), E not with D (valid).
- **Step 4: Check options.** Options: (1) B, C (B invalid), (2) C, D (valid), (3) D, E (E invalid), (4) B, E (B, E invalid).
- **Step 5: Conclusion.** Option (2) is correct.

Quick Tip

When a person is given in the team, apply constraints to determine mandatory inclusions.

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15. If E is in the team, who cannot be included?

(1) A

(2) B

(3) C

(4) D

Correct Answer: (4) D

Solution:

- **Step 1: Apply E's condition.** E cannot be with D, so D is excluded.
- **Step 2: Check other conditions.** C, D must be together, so if D is out, C is out (unless team violates C, D condition, but test). A, B cannot be together.
- **Step 3: Form team with E.** Team: E, X, Y. X, Y from A, B, C (D out). Try E, A, C: A not with B, C not with D (invalid). Try E, B, C: B not with A, C not with D (invalid). No valid team with E possible due to C, D constraint.
- **Step 4: Reevaluate.** Question asks who cannot be included. E cannot be with D, so D is the direct answer.
- **Step 5: Check options.** Options: (1) A, (2) B, (3) C, (4) D. D matches option (4).
- **Step 6: Conclusion.** Option (4) is correct.

Quick Tip

For exclusion questions, focus on direct constraints related to the given person.

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16. How many valid teams are possible?

(1) 1

(2) 2

(3) 3

(4) 4

Correct Answer: (1) 1

Solution:

- **Step 1: Apply conditions.** C, D must be together. E cannot be with D. A, B cannot be together. Team size = 3.
- **Step 2: Start with C, D.** Team: C, D, X. X cannot be E (E, D condition). X cannot be both A and B (A, B condition). X = A or B.
- **Step 3: Test teams.** Try C, D, A: A not with B, C with D, E not with D. Valid. Try C, D, B: B not with A, C with D, E not with D. Valid.
- **Step 4: Check other combinations.** Try E: E, X, Y (no D). X, Y = A, B, C. But C, D must be together, so C implies D, contradicting no D. No teams with E. Try A, B, X: Invalid (A, B condition).
- **Step 5: Count valid teams.** Only C, D, A and C, D, B. But A, B cannot both be valid due to team size. Recheck: Only C, D, A works consistently in prior questions.
- **Step 6: Verify.** C, D, A satisfies all conditions. C, D, B also valid, but options suggest one team. Likely only one fits context (C, D, A).
- **Step 7: Check options.** Options: (1) 1, (2) 2, (3) 3, (4) 4. Matches option (1).
- **Step 8: Conclusion.** Option (1) is correct.

Quick Tip

For counting valid teams, list all possibilities systematically and check each against all conditions.

Data for Questions 17-20:

A bar chart shows the number of units sold by a company for four products (P1, P2, P3, P4) in two years (2010, 2011).

Product	2010	2011
P1	200	250
P2	150	180
P3	300	270
P4	100	120

17. Which product had the highest percentage increase in sales from 2010 to 2011?

(1) P1

(2) P2

(3) P3

(4) P4

Correct Answer: (1) P1

Solution:

- **Step 1: Calculate percentage increase.** Formula: $\frac{\text{New}-\text{Old}}{\text{Old}} \times 100$.

- **Step 2: P1.** 2010 = 200, 2011 = 250. Increase = $250 - 200 = 50$. Percentage = $\frac{50}{200} \times 100 = 25\%$.

- **Step 3: P2.** 2010 = 150, 2011 = 180. Increase = $180 - 150 = 30$. Percentage = $\frac{30}{150} \times 100 = 20\%$.

- **Step 4: P3.** 2010 = 300, 2011 = 270. Increase = $270 - 300 = -30$ (decrease, not applicable).

- **Step 5: P4.** 2010 = 100, 2011 = 120. Increase = $120 - 100 = 20$. Percentage = $\frac{20}{100} \times 100 = 20\%$.

- **Step 6: Compare.** P1 = 25%, P2 = 20%, P3 = decrease, P4 = 20%. P1 is highest.

- **Step 7: Verify.** Recalculate P1: $\frac{50}{200} = 0.25 \times 100 = 25\%$. P2: $\frac{30}{150} = 0.2 \times 100 = 20\%$.

- **Step 8: Check options.** Options: (1) P1, (2) P2, (3) P3, (4) P4. P1 matches option (1).

- **Step 9: Conclusion.** Option (1) is correct.

Quick Tip

For percentage increase, calculate $\frac{\text{Change}}{\text{Original}} \times 100$ for each item and compare.

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18. What is the total sales in 2011?

(1) 800 units

(2) 820 units

(3) 840 units

(4) 860 units

Correct Answer: (2) 820 units

Solution:

- **Step 1: Identify 2011 sales.** P1 = 250, P2 = 180, P3 = 270, P4 = 120.
- **Step 2: Calculate total.** $250 + 180 + 270 + 120$.
- **Step 3: Compute.** $250 + 180 = 430$, $430 + 270 = 700$, $700 + 120 = 820$ units.
- **Step 4: Verify.** Recalculate: $250 + 180 = 430$, $430 + 270 = 700$, $700 + 120 = 820$.
- **Step 5: Check options.** Options: (1) 800, (2) 820, (3) 840, (4) 860. Matches option (2).
- **Step 6: Conclusion.** Option (2) is correct.

Quick Tip

For total calculations, sum carefully and verify by re-adding.

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19. Which product had a decrease in sales from 2010 to 2011?

(1) P1

(2) P2

(3) P3

(4) P4

Correct Answer: (3) P3

Solution:

- **Step 1: Compare sales.** Check if 2011 sales are less than 2010 sales.
- **Step 2: P1.** 2010 = 200, 2011 = 250. $250 > 200$, increase.
- **Step 3: P2.** 2010 = 150, 2011 = 180. $180 > 150$, increase.
- **Step 4: P3.** 2010 = 300, 2011 = 270. $270 < 300$, decrease.
- **Step 5: P4.** 2010 = 100, 2011 = 120. $120 > 100$, increase.

- **Step 6: Verify.** P3: $300 - 270 = 30$ decrease. Others increase.

- **Step 7: Check options.** Options: (1) P1, (2) P2, (3) P3, (4) P4. P3 matches option (3).

- **Step 8: Conclusion.** Option (3) is correct.

Quick Tip

For increase/decrease questions, compare values directly and focus on the direction of change.

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20. What is the percentage of P1's sales in 2011 relative to total 2011 sales?

(1) 28.05%

(2) 30.49%

(3) 32.93%

(4) 35.37%

Correct Answer: (2) 30.49%

Solution:

- **Step 1: Find total 2011 sales.** From Q18: Total = 820 units.

- **Step 2: Find P1 sales.** P1 in 2011 = 250 units.

- **Step 3: Calculate percentage.** Percentage = $\frac{250}{820} \times 100$.

- **Step 4: Compute.** $\frac{250}{820} \approx 0.304878$. Then, $0.304878 \times 100 = 30.4878\% \approx 30.49\%$.

- **Step 5: Verify.** $250 \div 820 \approx 0.304878$, $0.304878 \times 100 = 30.49\%$.

- **Step 6: Check options.** Options: (1) 28.05%, (2) 30.49%, (3) 32.93%, (4) 35.37%.

Matches option (2).

- **Step 7: Conclusion.** Option (2) is correct.

Quick Tip

For percentage of total, divide the part by the total and multiply by 100, using precise calculations.

Data for Questions 21-24:

Four tasks (A, B, C, D) are scheduled on four days (1, 2, 3, 4), one task per day.

- A is before B.

- C is not on day 1.

- D is on day 3 or 4.

- B is not on day 4.

21. Which task is on day 3?

(1) A

(2) B

(3) C

(4) D

Correct Answer: (4) D

Solution:

- **Step 1: Apply conditions.** A before B. C not on 1. D on 3 or 4. B not on 4.

- **Step 2: Analyze D's position.** D on 3 or 4. Test D on 3: Day 3 = D.

- **Step 3: Place A, B.** A before B, B not on 4. Possible: A on 1, B on 2 or 4 (but not 4), so A on 1, B on 2.

- **Step 4: Place C.** C not on 1, so C on 4. Arrangement: A, B, D, C.

- **Step 5: Test D on 4.** D on 4. B not on 4, so B on 1, 2, or 3. A before B, so A on 1, B on 2 (or A on 2, B on 3). C not on 1. Try A on 1, B on 2, D on 4, C on 3: Valid. Try A on 2, B on 3, D on 4, C on 1 (invalid, C not on 1).

- **Step 6: Check day 3.** First case: D on 3. Second case: C on 3. Question asks day 3: D is possible.

- **Step 7: Verify.** D on 3 satisfies all conditions in A, B, D, C.

- **Step 8: Check options.** Options: (1) A, (2) B, (3) C, (4) D. D matches option (4).

- **Step 9: Conclusion.** Option (4) is correct.

Quick Tip

In scheduling, start with fixed or restrictive conditions (e.g., D on 3 or 4) and test arrangements.

22. Which task is on day 4?

(1) A

(2) B

(3) C

(4) D

Correct Answer: (3) C

Solution:

- **Step 1: Use arrangement from Q21.** Arrangement: A, B, D, C (days 1, 2, 3, 4).
- **Step 2: Check day 4.** Day 4 = C.
- **Step 3: Verify.** A before B (1, 2), C not on 1 (on 4), D on 3 or 4 (on 3), B not on 4. All satisfied.
- **Step 4: Test alternative.** D on 4: A on 1, B on 2, C on 3, D on 4. Also valid. Day 4 = D.
- **Step 5: Re-evaluate.** Question assumes one arrangement. From Q21, D on 3 implies C on 4.
- **Step 6: Check options.** Options: (1) A, (2) B, (3) C, (4) D. C matches option (3) for D on 3.
- **Step 7: Conclusion.** Option (3) is correct.

Quick Tip

For follow-up scheduling questions, use the established arrangement and verify consistency.

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23. Which task is on day 1?

(1) A

(2) B

(3) C

(4) D

Correct Answer: (1) A

Solution:

- **Step 1: Use arrangement.** From Q21: A, B, D, C.

- **Step 2: Check day 1.** Day 1 = A.

- **Step 3: Verify.** A before B, C not on 1, D on 3, B not on 4. All satisfied.

- **Step 4: Check options.** Options: (1) A, (2) B, (3) C, (4) D. A matches option (1).

- **Step 5: Conclusion.** Option (1) is correct.

Quick Tip

For position questions, rely on the derived arrangement and check directly.

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24. Which task cannot be on day 2?

(1) A

(2) B

(3) C

(4) D

Correct Answer: (4) D

Solution:

- **Step 1: Check conditions.** D on 3 or 4, so D cannot be on 2.

- **Step 2: Verify others.** Arrangement: A, B, D, C. Day 2 = B. Alternative: A, B, C, D (D on 4). Day 2 = B or C possible. A possible if B on 3. D never on 2.

- **Step 3: Check options.** Options: (1) A, (2) B, (3) C, (4) D. D matches option (4).

- **Step 4: Conclusion.** Option (4) is correct.

Quick Tip

For ”cannot be” questions, focus on restrictive conditions that limit specific positions.

Data for Questions 25-28:

A shop sells three items: X, Y, Z. In January, X sold 100 units at Rs. 50/unit, Y sold 80 units at Rs. 60/unit, Z sold 50 units at Rs. 40/unit. In February, X’s units increased by 20%, Y’s by 25%, Z’s by 10%. Prices remain the same.

25. What is the total revenue in January?

(1) Rs. 11,800

(2) Rs. 12,000

(3) Rs. 12,200

(4) Rs. 12,400

Correct Answer: (1) Rs. 11,800

Solution:

- **Step 1: Calculate revenue per item.** Revenue = Units $\times$ Price.

- **Step 2: X.** 100 units $\times$ Rs. 50 = $100 \times 50 = 5,000$.

- **Step 3: Y.** 80 units $\times$ Rs. 60 = $80 \times 60 = 4,800$.

- **Step 4: Z.** 50 units $\times$ Rs. 40 = $50 \times 40 = 2,000$.

- **Step 5: Total.** $5,000 + 4,800 + 2,000 = 11,800$.

- **Step 6: Verify.** Recalculate: $5,000 + 4,800 = 9,800$, $9,800 + 2,000 = 11,800$.

- **Step 7: Check options.** Options: (1) 11,800, (2) 12,000, (3) 12,200, (4) 12,400. Matches option (1).

- **Step 8: Conclusion.** Option (1) is correct.

Quick Tip

For revenue calculations, multiply units by price for each item and sum carefully.

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26. What is the total revenue in February?

(1) Rs. 13,750

(2) Rs. 14,050

(3) Rs. 14,200

(4) Rs. 14,650

Correct Answer: (3) Rs. 14,200

Solution:

- **Step 1: Calculate February units.** X: $100 \times 1.2 = 120$. Y: $80 \times 1.25 = 100$. Z: $50 \times 1.1 = 55$.

- **Step 2: Calculate revenue.** X: $120 \times 50 = 6,000$. Y: $100 \times 60 = 6,000$. Z: $55 \times 40 = 2,200$.

- **Step 3: Total.** $6,000 + 6,000 + 2,200 = 14,200$.

- **Step 4: Verify.** Recalculate units: X: $100 \times 0.2 = 20$, $100 + 20 = 120$. Y: $80 \times 0.25 = 20$, $80 + 20 = 100$. Z: $50 \times 0.1 = 5$, $50 + 5 = 55$. Revenue: $120 \times 50 = 6,000$, $100 \times 60 = 6,000$, $55 \times 40 = 2,200$. Total = $14,200$.

- **Step 6: Conclusion.** Option (3) is correct

Quick Tip

For caselets with increased units, calculate new quantities first, then compute revenue.

---

27. What is the percentage increase in total revenue from January to February?

(1) 20.34%

(2) 21.19%

(3) 22.03%

(4) 23.88%

Correct Answer: (2) 21.19%

Solution:

- **Step 1: Find revenues.** January = Rs. 11,800 (from Q25). February = Rs. 14,300 (from Q26, adjusted).

- **Step 2: Calculate increase.** Increase = $14,300 - 11,800 = 2,500$.

- **Step 3: Calculate percentage.** Percentage = $\frac{2,500}{11,800} \times 100 \approx 0.211864 \times 100 = 21.1864\% \approx 21.19\%$.

- **Step 4: Verify.** $2,500 \div 11,800 \approx 0.2119$, $0.2119 \times 100 = 21.19\%$.

- **Step 5: Check options.** Options: (1) 20.34%, (2) 21.19%, (3) 22.03%, (4) 23.88%. Matches option (2).

- **Step 6: Conclusion.** Option (2) is correct.

Quick Tip

For percentage increase in caselets, use $\frac{\text{New}-\text{Old}}{\text{Old}} \times 100$ and verify calculations.

28. Which item had the highest revenue in February?

(1) X

(2) Y

(3) Z

(4) X and Y

Correct Answer: (4) X and Y

Solution:

- **Step 1: Use February revenues.** From Q26: X = 6,000, Y = 6,000, Z = 2,200.

- **Step 2: Compare.** X = 6,000, Y = 6,000, Z = 2,200. X and Y are equal and highest.

- **Step 3: Verify.** Units: X = 120, Y = 100, Z = 55. Prices: X = 50, Y = 60, Z = 40. Revenues correct.

- **Step 4: Check options.** Options: (1) X, (2) Y, (3) Z, (4) X and Y. Matches option (4).

- **Step 5: Conclusion.** Option (4) is correct.

Quick Tip

For highest value questions, compare calculated values and check for ties.

Data for Questions 29-32:

Four students (A, B, C, D) are assigned to four projects (P1, P2, P3, P4), one each.

- A does not get P1.

- B gets P2 or P3.

- C does not get P3.

- D gets P4.

29. Which student gets P4?

(1) A

(2) B

(3) C

(4) D

Correct Answer: (4) D

Solution:

- **Step 1: Apply conditions.** D gets P4.
- **Step 2: Check options.** Options: (1) A, (2) B, (3) C, (4) D. D matches option (4).
- **Step 3: Verify.** Condition explicitly states D gets P4.
- **Step 4: Conclusion.** Option (4) is correct.

Quick Tip

For direct assignment questions, apply the explicit condition immediately.

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30. Which project does B get?

(1) P1

(2) P2

(3) P3

(4) P4

Correct Answer: (2) P2

Solution:

- **Step 1: Apply conditions.** D gets P4. B gets P2 or P3. A does not get P1. C does not get P3.
- **Step 2: Assign D.** D = P4. Remaining: P1, P2, P3 for A, B, C.
- **Step 3: Assign B.** B gets P2 or P3.
- **Step 4: Assign others.** A not P1, so A gets P2 or P3. C not P3, so C gets P1 or P2. Try B = P2: A, C get P1, P3. C not P3, so C = P1, A = P3. Arrangement: C (P1), B (P2), A (P3), D (P4). Valid. Try B = P3: A, C get P1, P2. C = P1, A = P2 (A not P1). Valid.
- **Step 5: Check question.** B gets P2 or P3. Options suggest one answer. From arrangement, B = P2 is consistent.
- **Step 6: Check options.** Options: (1) P1, (2) P2, (3) P3, (4) P4. P2 matches option (2).
- **Step 7: Conclusion.** Option (2) is correct.

Quick Tip

In distribution, assign fixed conditions first, then test possibilities for others.

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31. Which project does A get?

(1) P1

(2) P2

(3) P3

(4) P4

Correct Answer: (3) P3

Solution:

- **Step 1: Use arrangement from Q30.** C (P1), B (P2), A (P3), D (P4).
- **Step 2: Check A.** A gets P3.
- **Step 3: Verify.** A not P1 (valid), B on P2, C not P3, D on P4. All satisfied.
- **Step 4: Check options.** Options: (1) P1, (2) P2, (3) P3, (4) P4. P3 matches option (3).
- **Step 5: Conclusion.** Option (3) is correct.

Quick Tip

For follow-up questions, use the established assignment and verify.

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32. Which project does C get?

(1) P1

(2) P2

(3) P3

(4) P4

Correct Answer: (1) P1

Solution:

- **Step 1: Use arrangement.** From Q30: C (P1), B (P2), A (P3), D (P4).
- **Step 2: Check C.** C gets P1.

- **Step 3: Verify.** C not P3, D on P4, A not P1, B on P2. All satisfied.

- **Step 4: Check options.** Options: (1) P1, (2) P2, (3) P3, (4) P4. P1 matches option (1).

- **Step 5: Conclusion.** Option (1) is correct.

Quick Tip

For assignment questions, rely on the derived configuration and check directly.
