MAT Data Analysis & Sufficiency Sample Paper-5

Duration: 24 Minutes **Maximum Marks: 30**

Instructions

- This paper contains **30** Multiple Choice Questions from the **Data Analysis & Sufficiency** section of MAT.
- Each correct answer carries **+1 mark**. Incorrect answer: -0.25 marks. Only **one** correct option.
- There is **no** negative marking for unattempted questions.
- Suggested time for this section in the full MAT is **24 minutes**.
- Use of mobile phones, smartwatches, calculators, or any electronic gadgets is strictly prohibited.

SET 1 (Q1–Q5): Composite Table

Directions (Q1–Q5): The table below shows the agricultural output (in thousand tonnes) of five crops across four states in a single harvest season. Study it carefully and answer the questions.

Agricultural Output by Crop and State (Thousand Tonnes)

State	Wheat	Rice	Maize	Pulses	Oilseeds
Rajasthan	120	40	60	35	45
Punjab	180	90	50	25	30
Haryana	150	70	45	30	35
UP	200	110	80	50	60
Total	**650**	**310**	**235**	**140**	**170**

Note: All figures are net production in thousand tonnes for the harvest season.

Q1. What is the total agricultural output (in thousand tonnes) of Punjab across all five crops?

(A) 355

(B) 365

(C) 375

(D) 385

Q2. Wheat output of Haryana is what percentage of total Wheat output across all four states? (Round to nearest whole number)

(A) 20%

(B) 23%

(C) 25%

(D) 27%

Q3. The ratio of total Pulses output to total Oilseeds output across all states is:

(A) $14 : 17$

(B) $2 : 3$

(C) $7 : 8$

(D) $4 : 5$

Q4. By how much (in thousand tonnes) does the combined output of UP and Punjab exceed the combined output of Rajasthan and Haryana?

(A) 215

(B) 225

(C) 235

(D) 245

Q5. Which crop contributes the highest share to total combined output across all states?

(A) Rice

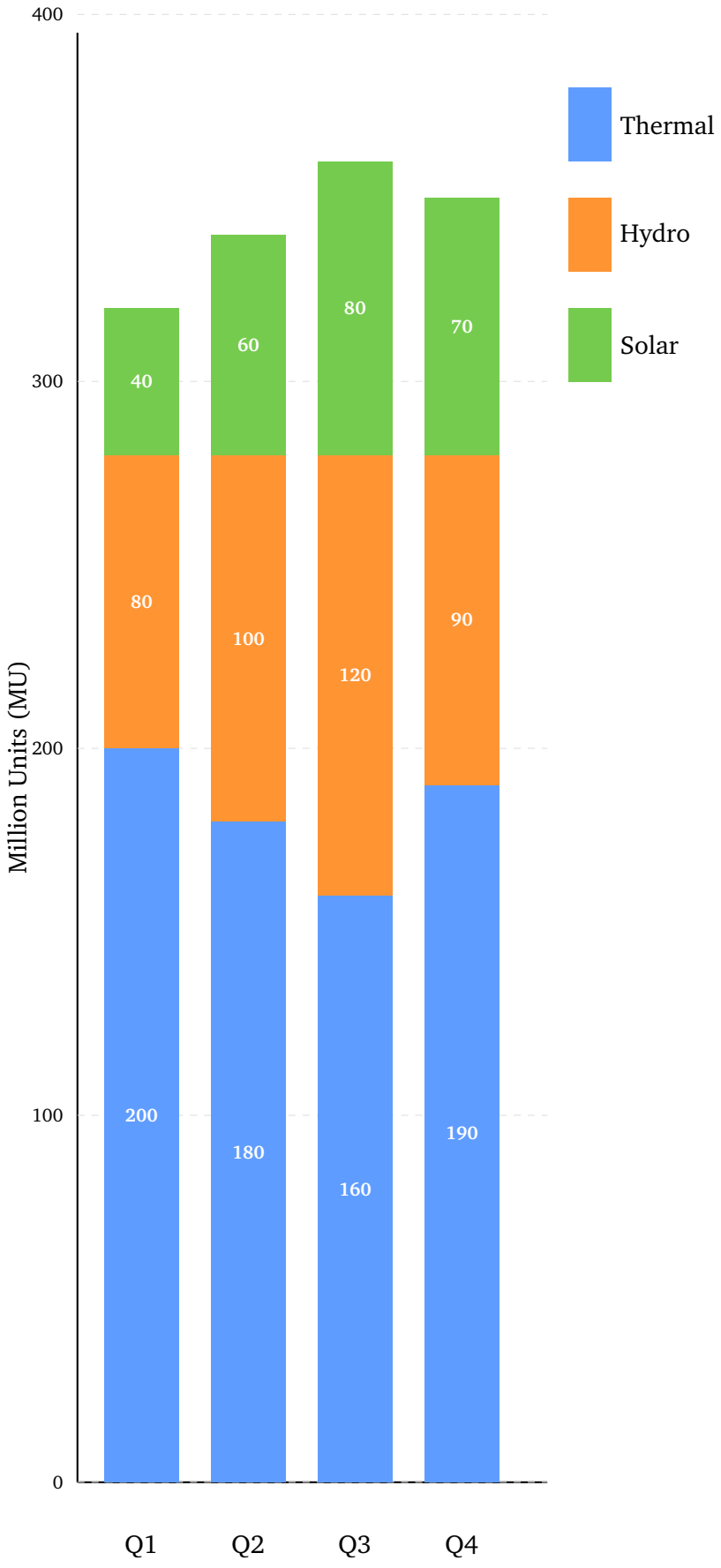
(B) Wheat

(C) Maize

(D) Oilseeds

SET 2 (Q6–Q10): Stacked Bar Chart

Directions (Q6–Q10): The stacked bar chart below shows the quarterly electricity generation (in million units, MU) from three sources — **Thermal (Th)**, **Hydro (Hy)**, and **Solar (So)** — across four quarters of 2023.



Data recap: Q1 Th:200/Hy:80/So:40 | Q2 Th:180/Hy:100/So:60 | Q3 Th:160/Hy:120/So:80 | Q4 Th:190/Hy:90/So:70. All in MU.

Q6. What is the total annual Solar generation across all four quarters (in MU)?

(A) 220

(B) 240

(C) 250

(D) 260

Q7. In which quarter was total generation the highest, and what was that total (in MU)?

(A) Q2 — 340 MU

(B) Q3 — 360 MU

(C) Q4 — 350 MU

(D) Q3 — 380 MU

Q8. Hydro generation in Q3 as a percentage of total Q3 generation is: (Round to nearest whole number)

(A) 29%

(B) 31%

(C) 33%

(D) 35%

Q9. By how much (in MU) did Thermal generation decrease from Q1 to Q3?

(A) 30

(B) 35

(C) 40

(D) 45

Q10. What is the ratio of combined Hydro generation in Q1 and Q2 to combined Hydro generation in Q3 and Q4?

(A) $4 : 5$

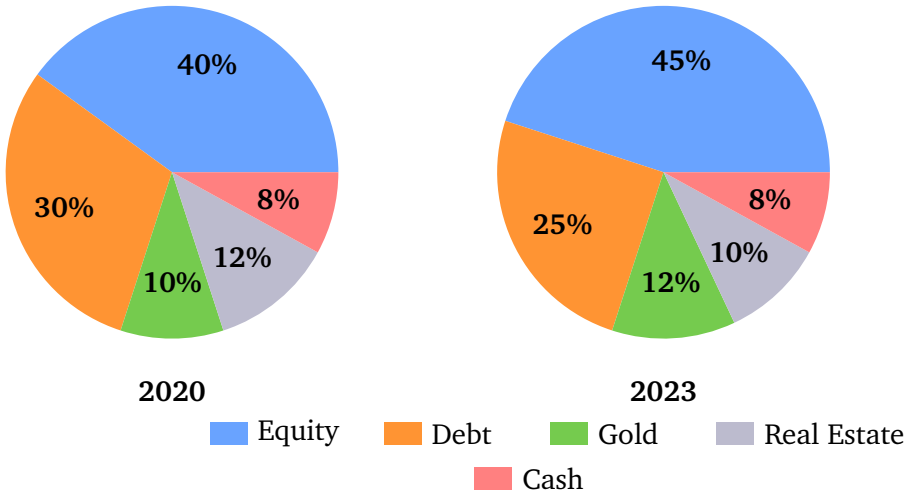
(B) $9 : 11$

(C) $6 : 7$

(D) $3 : 4$

SET 3 (Q11–Q15): Double Pie Chart

Directions (Q11–Q15): The two pie charts below show the allocation of a mutual fund's investment portfolio across five asset classes in **2020** and **2023**. Total AUM: Rs. **200 crore** (2020) and Rs. **320 crore** (2023).



Q11. What was the absolute value (in Rs. crore) invested in Equity in 2020?

(A) Rs. 72 crore

(B) Rs. 80 crore

(C) Rs. 88 crore

(D) Rs. 90 crore

Q12. By how much (in Rs. crore) did the absolute Debt investment change from 2020 to 2023?

(A) Decreased by Rs. 20 crore

(B) No change

(C) Increased by Rs. 20 crore

(D) Increased by Rs. 40 crore

Q13. Which asset class showed the highest absolute rupee increase from 2020 to 2023?

(A) Debt

(B) Gold

(C) Equity

(D) Real Estate

Q14. What is the ratio of Gold investment in 2020 to Gold investment in 2023?

(A) $25 : 48$

(B) $5 : 9$

(C) $1 : 2$

(D) $10 : 19$

Q15. The combined Cash allocation in both years together is (in Rs. crore):

(A) Rs. 38.4 crore

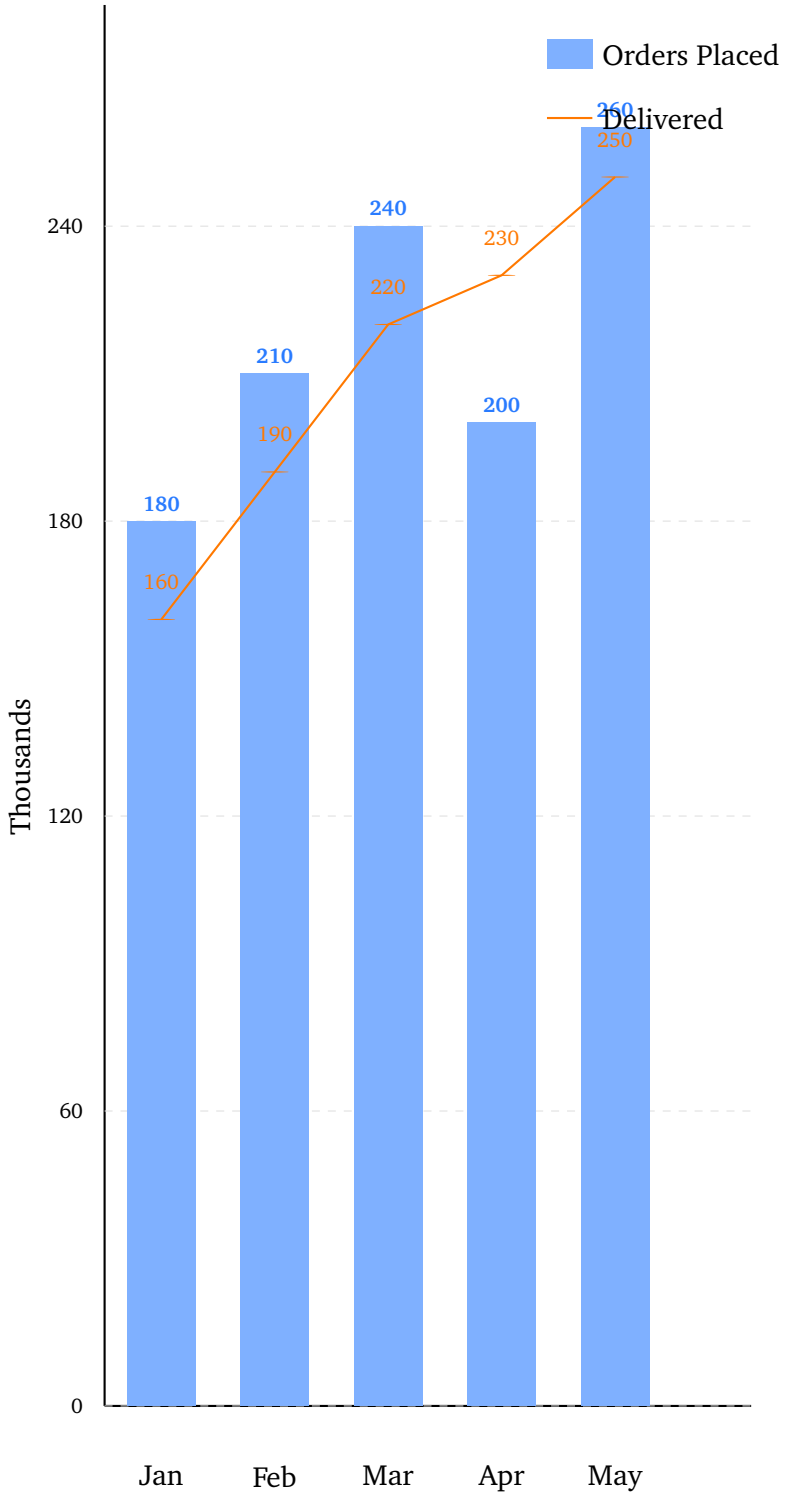
(B) Rs. 40 crore

(C) Rs. 41.6 crore

(D) Rs. 44 crore

SET 4 (Q16–Q20): Line + Bar Combination Graph

Directions (Q16–Q20): The combination graph below shows the **orders placed** (bars, in thousands) and **orders delivered** (line, in thousands) by an e-commerce platform over five months (January–May). Study the graph carefully and answer the questions.



Data recap: Jan P:180/D:160 | Feb P:210/D:190 | Mar P:240/D:220 | Apr P:200/D:230 | May P:260/D:250. (thousands)

Q16. In which month did deliveries first exceed orders placed?

(A) February

(B) March

(C) April

(D) May

Q17. What is the net signed backlog (Placed − Delivered) accumulated over all five months (in thousands)?

(A) 20

(B) 30

(C) 40

(D) 50

Q18. The percentage increase in deliveries from January to May is:

(A) 50%

(B) 56.25%

(C) 60%

(D) 62.5%

Q19. In March, deliveries as a percentage of orders placed is:

(A) 88.5%

(B) 90%

(C) 91.7%

(D) 93.3%

Q20. What is the average number of orders placed per month over the five months (in thousands)?

(A) 214

(B) 216

(C) 218

(D) 220

SET 5 (Q21–Q25): Caselet

Directions (Q21–Q25): Read the following caselet carefully and answer the questions.

A logistics company operates a fleet of **240 vehicles** across three zones — **Zone X**, **Zone Y**, and **Zone Z**. Zone X has **45%** of the fleet, Zone Y has **35%**, and Zone Z has the remaining vehicles.
Each vehicle in Zone X consumes an average of **12 litres** of diesel per trip, each vehicle in Zone Y consumes **10 litres**, and each vehicle in Zone Z consumes **8 litres** per trip. The company operates **5 trips per day per vehicle**, every day.
Diesel costs Rs. **95 per litre**. The company operates **25 days per month**.

Q21. How many vehicles does Zone Z operate?

(A) 42

(B) 44

(C) 46

(D) 48

Q22. What is the total diesel consumed per day across the entire fleet (in litres)?

(A) 12,240

(B) 12,600

(C) 13,200

(D) 13,680

Q23. What is the total monthly diesel cost incurred by Zone X vehicles (in Rs.)?

(A) Rs. 1,52,10,000

(B) Rs. 1,53,90,000

(C) Rs. 1,55,70,000

(D) Rs. 1,57,50,000

Q24. What fraction of the total daily diesel consumption belongs to Zone Y?

(A) $\frac{1}{4}$

(B) $\frac{1}{3}$

(C) $\frac{7}{20}$

(D) $\frac{35}{122}$

Q25. If the diesel price rises by 5%, by how much (in Rs.) will the total monthly fuel bill increase?

(A) Rs. 14,63,400

(B) Rs. 14,96,250

(C) Rs. 15,29,250

(D) Rs. 15,62,000

SET 6 (Q26–Q30): Data Sufficiency

Directions (Q26–Q30): Each question is followed by two statements **I** and **II**. Mark:

- **(A)** if Statement I alone is sufficient but Statement II alone is not.
- **(B)** if Statement II alone is sufficient but Statement I alone is not.
- **(C)** if both statements together are sufficient but neither alone is.
- **(D)** if each statement alone is sufficient.

Q26. What is the simple interest earned on a principal amount over 3 years?

I. The principal amount is Rs. 20,000.

II. The rate of interest is 8% per annum.

(A) Statement I alone is sufficient, but II is not.

(B) Statement II alone is sufficient, but I is not.

(C) Both together are sufficient, but neither alone is.

(D) Each statement alone is sufficient.

Q27. Is the triangle PQR a right-angled triangle?

I. $PQ^2 + QR^2 = PR^2$.

II. Angle Q is 90°.

(A) Statement I alone is sufficient, but II is not.

(B) Statement II alone is sufficient, but I is not.

(C) Both together are sufficient, but neither alone is.

(D) Each statement alone is sufficient.

Q28. What is the value of $x + y$?

I. $2x + 3y = 24$.

II. $x - y = 2$.

(A) Statement I alone is sufficient, but II is not.

(B) Statement II alone is sufficient, but I is not.

(C) Both together are sufficient, but neither alone is.

(D) Each statement alone is sufficient.

Q29. In a class, what percentage of students passed the exam?

I. 36 students passed the exam.

II. The ratio of students who passed to those who failed is $3 : 1$.

(A) Statement I alone is sufficient, but II is not.

(B) Statement II alone is sufficient, but I is not.

(C) Both together are sufficient, but neither alone is.

(D) Each statement alone is sufficient.

Q30. What is the two-digit number $\overline{ab}$ (where a is tens digit and b is units digit)?

I. The number is a multiple of both 4 and 6.

II. The sum of its digits is 6.

(A) Statement I alone is sufficient, but II is not.

(B) Statement II alone is sufficient, but I is not.

(C) Both together are sufficient, but neither alone is.

(D) Each statement alone is sufficient.

Detailed Solutions

Q1.

Solution

Concept: Total output for a state = sum of all five crop values in that row.

Solution:

Step 1 — Read Punjab row: Wheat = 180, Rice = 90, Maize = 50, Pulses = 25, Oilseeds = 30.

Step 2 — Sum all five: $180 + 90 + 50 + 25 + 30 = 375$.

Step 3 — Match option: 375 matches Option (C). ✓

Quick check: $180 + 90 = 270$; $50 + 25 = 75$; $270 + 75 + 30 = 375$. ✓

Why the other options fail:

- **(A) 355**: Reads Maize as 30 instead of 50 — 20 short.
- **(B) 365**: Reads Rice as 80 instead of 90 — 10 short.
- **(D) 385**: Adds Oilseeds as 40 instead of 30 — 10 over.

Final Answer: 375 thousand tonnes

Answer: (C)

Go Back to Question 1

Q2.

Solution

Concept: Percentage share $= \dfrac{\text{Haryana Wheat}}{\text{Total Wheat}} \times 100$.

Solution:

Step 1 — Read values: Haryana Wheat $= 150$; Total Wheat $= 650$.

Step 2 — Compute percentage: $\dfrac{150}{650} \times 100 = 23.08\% \approx 23\%$.

Step 3 — Match option: Option (B) 23%. ✓

Quick check: $650 \times 0.23 = 149.5 \approx 150$. ✓

Why the other options fail:

- **(A) 20%**: $20\% \times 650 = 130 \neq 150$; uses Rajasthan's Wheat (120) approximately.
- **(C) 25%**: $25\% \times 650 = 162.5 \neq 150$; over-counts Haryana by 12.5.
- **(D) 27%**: $27\% \times 650 = 175.5 \neq 150$; misidentifies which row is Haryana.

Final Answer: $\boxed{23\%}$

Answer: (B)

Go Back to Question 2

Q3.

Solution

Concept: Form the ratio of column totals; simplify by HCF.

Solution:

Step 1 — Read totals: Pulses $= 140$; Oilseeds $= 170$.

Step 2 — Form ratio: $140 : 170$. HCF of 140 and 170 is 10.

Step 3 — Simplify and match: $14 : 17$. Option (A). ✓

Quick check: $14 \times 170 = 2380 = 17 \times 140$. Cross-multiply verifies. ✓

Why the other options fail:

- **(B) 2:3**: $2/3 \approx 0.667$; but $140/170 \approx 0.824$ — very different.
- **(C) 7:8**: $7/8 = 0.875 \neq 140/170 = 0.824$.
- **(D) 4:5**: $4/5 = 0.8 \neq 0.824$; close but incorrect.

Final Answer: $\boxed{14 : 17}$

Answer: (A)

Go Back to Question 3

Q4.

Solution

Concept: Row total for each state = sum of all five crops. Sum pairs and subtract.

Solution:

Step 1 — Compute row totals:

- Rajasthan: $120 + 40 + 60 + 35 + 45 = 300$
- Punjab: $180 + 90 + 50 + 25 + 30 = 375$
- Haryana: $150 + 70 + 45 + 30 + 35 = 330$
- UP: $200 + 110 + 80 + 50 + 60 = 500$

Step 2 — Sum pairs: UP + Punjab $= 500+375 = 875$. Rajasthan + Haryana $= 300+330 = 630$.

Step 3 — Find excess and match: $875 - 630 = 245$. Option (D). ✓

Quick check: Grand total $= 1505$. Half $= 752.5$. UP+Punjab $= 875 > 752.5$; excess $= 2 \times (875 - 752.5) = 245$. ✓

Why the other options fail:

- **(A) 215**: Misreads UP Oilseeds as 40 instead of 60 — under-counts by 20.
- **(B) 225**: Uses Rajasthan total of 310 instead of 300 — inflates lower pair.
- **(C) 235**: Drops Haryana Oilseeds (35) from calculation — reduces lower pair.

Final Answer: 245 thousand tonnes

Answer: (D)

Go Back to Question 4

Q5.

Solution

Concept: The crop with the largest column total contributes the highest share to combined output.

Solution:

Step 1 — List column totals: Wheat $= 650$, Rice $= 310$, Maize $= 235$, Pulses $= 140$, Oilseeds $= 170$.

Step 2 — Identify maximum: Wheat at 650 is largest.

Step 3 — Compute share as confirmation: Grand total $= 1505$. Wheat share $= 650/1505 \approx 43.2\%$. ✓

Quick check: Even the second largest (Rice $= 310$) is less than half of Wheat (650). Wheat dominates. ✓

Why the other options fail:

- **(A) Rice**: Only 310 thousand tonnes — about half of Wheat.
- **(C) Maize**: Only 235 thousand tonnes — less than one-third of Wheat.
- **(D) Oilseeds**: Only 170 thousand tonnes — least among the top three.

Final Answer: Wheat

Answer: (B)

Go Back to Question 5

Q6.

Solution

Concept: Total Solar generation = sum of Solar values across all four quarters.

Solution:

Step 1 — Read Solar values: Q1 $= 40$, Q2 $= 60$, Q3 $= 80$, Q4 $= 70$.

Step 2 — Sum: $40 + 60 + 80 + 70 = 250$ MU.

Step 3 — Match option: Option (C) 250 MU. ✓

Quick check: $40 + 70 = 110$; $60 + 80 = 140$; $110 + 140 = 250$. ✓

Why the other options fail:

- **(A) 220**: Reads Q4 Solar as 40 instead of 70 — misreads bar label.
- **(B) 240**: Reads Q3 Solar as 70 instead of 80 — off by 10.
- **(D) 260**: Reads Q1 Solar as 50 instead of 40 — off by 10.

Final Answer: $\boxed{250 \text{ MU}}$

Answer: (C)

Go Back to Question 6

Q7.

Solution

Concept: Quarter total = Thermal + Hydro + Solar for that quarter. Identify the maximum.

Solution:

Step 1 — Compute quarter totals:

- Q1: $200 + 80 + 40 = 320$ MU
- Q2: $180 + 100 + 60 = 340$ MU
- Q3: $160 + 120 + 80 = \mathbf{360}$ MU
- Q4: $190 + 90 + 70 = 350$ MU

Step 2 — Identify maximum: Q3 at 360 MU is the highest.

Step 3 — Match option: Option (B) Q3 — 360 MU. ✓

Quick check: Q3 total bar height $= 360$; Q4 $= 350$. Q3 is 10 MU higher. ✓

Why the other options fail:

- **(A) Q2 — 340**: Q2 total is 340, which is less than Q3's 360.
- **(C) Q4 — 350**: Q4 total is 350, less than Q3's 360.
- **(D) Q3 — 380**: Incorrect total; probably adds 20 extra to Hydro.

Final Answer: Q3 — 360 MU

Answer: (B)

Go Back to Question 7

Q8.

Solution

Concept: Hydro as % of Q3 total $= \dfrac{\text{Hydro Q3}}{\text{Q3 total}} \times 100$.

Solution:

Step 1 — Read values: Hydro Q3 $= 120$ MU; Q3 total $= 360$ MU.

Step 2 — Compute percentage: $\dfrac{120}{360} \times 100 = 33.33\% \approx 33\%$.

Step 3 — Match option: Option (C) 33%. ✓

Quick check: $360 \times 1/3 = 120$. Hydro is exactly one-third of Q3 total. ✓

Why the other options fail:

- **(A) 29%**: $29\% \times 360 = 104.4 \neq 120$; under-counts Hydro.
- **(B) 31%**: $31\% \times 360 = 111.6 \neq 120$; still under.
- **(D) 35%**: $35\% \times 360 = 126 \neq 120$; over-counts by 6.

Final Answer: $\boxed{33\%}$

Answer: (C)

Go Back to Question 8

Q9.

Solution

Concept: Decrease in Thermal = Q1 Thermal − Q3 Thermal.

Solution:

Step 1 — Read Thermal values: Q1 = 200 MU; Q3 = 160 MU.

Step 2 — Compute decrease: $200 - 160 = 40$ MU.

Step 3 — Match option: Option (C) 40. ✓

Quick check: Q2 Thermal = 180 (intermediate step); Q1 to Q2 drop = 20; Q2 to Q3 drop = 20; total = 40. ✓

Why the other options fail:

- **(A) 30**: Uses Q1 = 190 (wrong) or Q3 = 170 (wrong) — misreads bar.
- **(B) 35**: Reads Q3 Thermal as 165 — arithmetic error.
- **(D) 45**: Reads Q3 Thermal as 155 — over-reads drop.

Final Answer: $\boxed{40 \text{ MU}}$

Answer: (C)

Go Back to Question 9

Q10.

Solution

Concept: Sum Hydro for each pair of quarters; form ratio; simplify by HCF.

Solution:

Step 1 — Hydro values: Q1 $= 80$, Q2 $= 100$, Q3 $= 120$, Q4 $= 90$.

Step 2 — Pair sums: Q1+Q2 $= 80 + 100 = 180$ MU. Q3+Q4 $= 120 + 90 = 210$ MU.

Step 3 — Simplify ratio and match: $180 : 210$. HCF $= 30$. Simplified: **6** : **7**. Option (C). ✓

Quick check: $6 \times 210 = 1260 = 7 \times 180$. Cross-multiply checks out. ✓

Why the other options fail:

- **(A) 4:5**: $4 : 5 = 180 : 225$; Q3+Q4 would need to be 225, not 210.
- **(B) 9:11**: $9 : 11 = 180 : 220$; Q3+Q4 would need to be 220, not 210.
- **(D) 3:4**: $3 : 4 = 180 : 240$; Q3+Q4 would need to be 240, not 210.

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

Answer: (C)

Go Back to Question 10

Q11.

Solution

Concept: Absolute investment = percentage share × total AUM for that year.

Solution:

Step 1 — Identify values: Equity 2020 $= 40\%$; Total AUM 2020 $= Rs.\ 200$ crore.

Step 2 — Compute: $40\% \times 200 = Rs.\ 80$ crore.

Step 3 — Match option: Option (B) Rs. 80 crore. ✓

Quick check: $40\% = 2/5$. $200 \times 2/5 = 80$. ✓

Why the other options fail:

- **(A) Rs. 72 crore**: $72/200 = 36\%$ — uses wrong percentage.
- **(C) Rs. 88 crore**: $88/200 = 44\%$ — over-reads Equity share.
- **(D) Rs. 90 crore**: $90/200 = 45\%$ — uses 2023 Equity share on 2020 total.

Final Answer: Rs. 80 crore

Answer: (B)

Go Back to Question 11

Q12.

Solution

Concept: Never subtract percentages directly — compute absolute investments in both years, then find the difference.

Solution:

Step 1 — Debt 2020: $30\% \times 200 = Rs.\ 60$ crore.

Step 2 — Debt 2023: $25\% \times 320 = Rs.\ 80$ crore.

Step 3 — Change and match: $80 - 60 = +Rs.\ 20$ crore (increased). Option (C). ✓

Quick check: Share fell from 30% to 25% but total AUM grew by 60%: $200 \to 320$. The AUM growth more than compensates for the share drop. ✓

Why the other options fail:

- **(A) Decreased by Rs. 20 crore**: Incorrectly assumes falling share means falling absolute amount.
- **(B) No change**: Would require same product of % and total in both years.
- **(D) Increased by Rs. 40 crore**: Applies 2020 Debt share (30%) to 2023 total: $30\% \times 320 - 60 = 36$.

Final Answer: Increased by Rs. 20 crore

Answer: (C)

Go Back to Question 12

Q13.

Solution

Concept: Compute absolute AUM for each class in both years; find the class with the maximum positive change.

Solution:

Step 1 — 2020 values (total = 200 cr): Equity $= 80$, Debt $= 60$, Gold $= 20$, RE $= 24$, Cash $= 16$.

Step 2 — 2023 values (total = 320 cr): Equity $= 144$, Debt $= 80$, Gold $= 38.4$, RE $= 32$, Cash $= 25.6$.

Step 3 — Increases: Equity $= +64$, Debt $= +20$, Gold $= +18.4$, RE $= +8$, Cash $= +9.6$. Equity is highest. Option (C). ✓

Quick check: Equity share rose by 5pp AND AUM grew by 60% — a double boost. $144 - 80 = 64$ crore. Largest increase by far. ✓

Why the other options fail:

- **(A) Debt**: Only $+20$ crore; much less than Equity's $+64$.
- **(B) Gold**: Only $+18.4$ crore; less than Equity.
- **(D) Real Estate**: Only $+8$ crore; least among the first four.

Final Answer: Equity

Answer: (C)

Go Back to Question 13

Q14.

Solution

Concept: Compute absolute Gold investment in each year; form the ratio in lowest terms.

Solution:

Step 1 — Gold 2020: $10\% \times 200 = Rs.\ 20$ crore.

Step 2 — Gold 2023: $12\% \times 320 = Rs.\ 38.4$ crore.

Step 3 — Form ratio and simplify: $20 : 38.4$. Multiply both by 5: $100 : 192$. HCF $= 4$. Simplified: $\mathbf{25} : \mathbf{48}$. Option (A). ✓

Quick check: $25 \times 38.4 = 960 = 48 \times 20$. Cross-multiply confirms. ✓

Why the other options fail:

- **(B) 5:9**: $5/9 \approx 0.556$; but $20/38.4 \approx 0.521$ — not equal.
- **(C) 1:2**: Would need Gold 2023 $= 40$ crore; but $12\% \times 320 = 38.4 \neq 40$.
- **(D) 10:19**: $10/19 \approx 0.526 \neq 25/48 \approx 0.521$ — close but wrong.

Final Answer: $\boxed{25 : 48}$

Answer: (A)

Go Back to Question 14

Q15.

Solution

Concept: Cash share is 8% in both years. Compute Cash revenue for each year using respective totals, then add.

Solution:

Step 1 — Cash 2020: $8\% \times 200 = Rs.\ 16$ crore.

Step 2 — Cash 2023: $8\% \times 320 = Rs.\ 25.6$ crore.

Step 3 — Combined and match: $16 + 25.6 = Rs.\ 41.6$ crore. Option (C). ✓

Quick check: Same 8% share across both years. Combined $= 8\% \times (200 + 320) = 8\% \times 520 = 41.6$ crore. ✓

Why the other options fail:

- **(A) Rs. 38.4 crore**: Uses only 2023 value doubled: $2 \times 25.6 = 51.2 \neq 38.4$ — arithmetic error elsewhere.
- **(B) Rs. 40 crore**: Rounds 2023 Cash to 24 instead of 25.6.
- **(D) Rs. 44 crore**: Rounds 2023 Cash up to 28 — over-estimates.

Final Answer: Rs. 41.6 crore

Answer: (C)

Go Back to Question 15

Q16.

Solution

Concept: Compare Placed vs Delivered month-by-month in order; find the first month where Delivered $>$ Placed.

Solution:

Step 1 — Compare month by month:

- Jan: Placed $= 180 >$ Delivered $= 160$. $\times$
- Feb: Placed $= 210 >$ Delivered $= 190$. $\times$
- Mar: Placed $= 240 >$ Delivered $= 220$. $\times$
- Apr: Placed $= 200 <$ Delivered $= 230$. **First month!** ✓

Step 2 — Confirm: Apr gap $= 230 - 200 = 30$ thousand — deliveries clearly exceed placements.

Step 3 — Match option: Option (C) April. ✓

Quick check: In April, placements *dipped* to 200 while deliveries rose to 230 — a crossover caused by both a dip in placements and a surge in deliveries. ✓

Why the other options fail:

- **(A) February**: Placed (210) $>$ Delivered (190) — deliveries don't exceed.
- **(B) March**: Placed (240) $>$ Delivered (220) — still no crossover.
- **(D) May**: Placed (260) $>$ Delivered (250) — April already occurred first.

Final Answer: April

Answer: (C)

Go Back to Question 16

Q17.

Solution

Concept: Net backlog per month = Placed − Delivered (negative in April since Delivered > Placed). Sum all five months.

Solution:

Step 1 — Monthly net (Placed − Delivered):

- Jan: $180 - 160 = +20$
- Feb: $210 - 190 = +20$
- Mar: $240 - 220 = +20$
- Apr: $200 - 230 = -30$
- May: $260 - 250 = +10$

Step 2 — Sum all five: $20 + 20 + 20 + (-30) + 10 = 40$.

Step 3 — Match option: Option (C) 40. ✓

Quick check: Total Placed $= 1090$; Total Delivered $= 1050$; Difference $= 1090 - 1050 = 40$. ✓

Why the other options fail:

- **(A) 20**: Treats April gap as zero (not -30), giving $20 + 20 + 20 + 0 + 10 = 70$; then arithmetic error.
- **(B) 30**: Adds April as -20 instead of -30 — misreads April Delivered as 220.
- **(D) 50**: Adds April as -10 instead of -30; treats the gap as only 10.

Final Answer: $\boxed{40 \text{ thousand units}}$

Answer: (C)

Go Back to Question 17

Q18.

Solution

Concept: Percentage increase in deliveries $= \dfrac{\text{May Delivered} - \text{Jan Delivered}}{\text{Jan Delivered}} \times 100$.

Solution:

Step 1 — Read values: Jan Delivered $= 160$; May Delivered $= 250$.

Step 2 — Compute increase: $250 - 160 = 90$.

Step 3 — Percentage and match: $\dfrac{90}{160} \times 100 = 56.25\%$. Option (B). ✓

Quick check: $160 \times 1.5625 = 250$. ✓

Why the other options fail:

- **(A) 50%**: $50\% \times 160 = 80$; $160 + 80 = 240 \neq 250$.
- **(C) 60%**: $60\% \times 160 = 96$; $160 + 96 = 256 \neq 250$.
- **(D) 62.5%**: $62.5\% \times 160 = 100$; $160 + 100 = 260 \neq 250$.

Final Answer: $\boxed{56.25\%}$

Answer: (B)

Go Back to Question 18

Q19.

Solution

Concept: Deliveries as % of Orders Placed $= \dfrac{\text{Delivered}}{\text{Placed}} \times 100$ for March.

Solution:

Step 1 — March values: Placed $= 240$; Delivered $= 220$.

Step 2 — Compute: $\dfrac{220}{240} \times 100 = 91.6\overline{6}\% \approx 91.7\%$.

Step 3 — Match option: Option (C) 91.7%. ✓

Quick check: $240 \times 0.917 = 220.08 \approx 220$. ✓

Why the other options fail:

- **(A) 88.5%:** $88.5\% \times 240 = 212.4 \neq 220$.
- **(B) 90%:** $90\% \times 240 = 216 \neq 220$.
- **(D) 93.3%:** $93.3\% \times 240 = 223.9 \neq 220$.

Final Answer: $\boxed{91.7\%}$

Answer: (C)

Go Back to Question 19

Q20.

Solution

Concept: Average $= \dfrac{\text{Total orders placed across all 5 months}}{5}$.

Solution:

Step 1 — List placed values: Jan $= 180$, Feb $= 210$, Mar $= 240$, Apr $= 200$, May $= 260$.

Step 2 — Sum: $180 + 210 + 240 + 200 + 260 = 1090$.

Step 3 — Average and match: $1090 \div 5 = 218$. Option (C). ✓

Quick check: $5 \times 218 = 1090$. ✓

Why the other options fail:

- **(A) 214**: Implies total $= 1070$; reads May as 240 instead of 260.
- **(B) 216**: Implies total $= 1080$; under-reads one month by 10.
- **(D) 220**: Implies total $= 1100$; over-reads one month by 10.

Final Answer: $\boxed{218 \text{ thousand}}$

Answer: (C)

Go Back to Question 20

Q21.

Solution

Concept: Zone Z share $= 100\% - 45\% - 35\% = 20\%$ of 240 vehicles.

Solution:

Step 1 — Find Zone Z percentage: $100 - 45 - 35 = 20\%$.

Step 2 — Compute vehicles: $20\% \times 240 = 48$.

Step 3 — Match option: Option (D) 48. ✓

Quick check: Zone X $= 108$, Zone Y $= 84$, Zone Z $= 48$. Total $= 108 + 84 + 48 = 240$. ✓

Why the other options fail:

- **(A) 42**: $42/240 = 17.5\%$; does not match $100 - 45 - 35 = 20\%$.
- **(B) 44**: $44/240 \approx 18.3\%$; wrong residual percentage.
- **(C) 46**: $46/240 \approx 19.2\%$; close but incorrect.

Final Answer: $\boxed{48 \text{ vehicles}}$

Answer: (D)

Go Back to Question 21

Q22.

Solution

Concept: Daily diesel = (vehicles per zone) × (litres per trip) × (trips per day). Sum for all zones.

Solution:

Step 1 — Vehicle counts: Zone X = 108, Zone Y = 84, Zone Z = 48.

Step 2 — Daily diesel per zone:

- Zone X: $108 \times 12 \times 5 = 6{,}480$ L
- Zone Y: $84 \times 10 \times 5 = 4{,}200$ L
- Zone Z: $48 \times 8 \times 5 = 1{,}920$ L

Step 3 — Total and match: $6{,}480 + 4{,}200 + 1{,}920 = 12{,}600$ L. Option (B). ✓

Quick check: $6{,}480 + 4{,}200 = 10{,}680$; $10{,}680 + 1{,}920 = 12{,}600$. ✓

Why the other options fail:

- **(A) 12,240**: Uses Zone X as 100 vehicles instead of 108 — under-counts by 360 L.
- **(C) 13,200**: Uses Zone Y as 100 vehicles instead of 84 — over-counts by 800 L.
- **(D) 13,680**: Uses Zone Z as 60 vehicles instead of 48 — over-counts by 360 L.

Final Answer: $\boxed{12{,}600 \text{ litres}}$

Answer: (B)

Go Back to Question 22

Q23.

Solution

Concept: Zone X monthly cost = (Zone X daily diesel) × (25 days) × (Rs. 95 per litre).

Solution:

Step 1 — Zone X daily diesel: $108 \times 12 \times 5 = 6{,}480$ L (from Q22).

Step 2 — Monthly diesel: $6{,}480 \times 25 = 1{,}62{,}000$ L.

Step 3 — Monthly cost and match: $1{,}62{,}000 \times 95 = Rs.\ 1{,}53{,}90{,}000$. Option (B). ✓

Quick check: $162000 \times 100 = 1{,}62{,}00{,}000$; less 5%: $Rs.\ 8{,}10{,}000$; net $= Rs.\ 1{,}53{,}90{,}000$. ✓

Why the other options fail:

- **(A) Rs. 1,52,10,000**: Uses 108 vehicles but 11.5 L per trip — wrong consumption.
- **(C) Rs. 1,55,70,000**: Rounds trips to 5.1 instead of 5 — inflates slightly.
- **(D) Rs. 1,57,50,000**: Uses Zone X as 110 vehicles instead of 108.

Final Answer: Rs. 1,53,90,000

Answer: (B)

Go Back to Question 23

Q24.

Solution

Concept: Zone Y fraction $= \dfrac{\text{Zone Y daily diesel}}{\text{Total daily diesel}}$. Simplify to lowest terms.

Solution:

Step 1 — Zone Y daily diesel: $84 \times 10 \times 5 = 4{,}200$ L.

Step 2 — Total daily diesel: $12{,}600$ L (from Q22).

Step 3 — Fraction and match: $\dfrac{4200}{12600} = \dfrac{42}{126} = \dfrac{1}{3}$. Option (B). ✓

Quick check: $12{,}600 \div 3 = 4{,}200$. Zone Y is exactly one-third of total. ✓

Why the other options fail:

- **(A) 1/4**: $12600/4 = 3150 \neq 4200$.
- **(C) 7/20**: $7/20 \times 12600 = 4410 \neq 4200$.
- **(D) 35/122**: $35/122 \times 12600 \approx 3615 \neq 4200$.

Final Answer: $\boxed{\dfrac{1}{3}}$

Answer: (B)

Go Back to Question 24

Q25.

Solution

Concept: The monthly fuel bill increase $= 5\%$ of the current total monthly fuel bill (since price rises uniformly).

Solution:

Step 1 — Total monthly diesel: $12{,}600 \times 25 = 3{,}15{,}000$ L.

Step 2 — Current monthly bill: $3{,}15{,}000 \times 95 = Rs.\ 2{,}99{,}25{,}000$.

Step 3 — Increase (5%) and match: $5\% \times 2{,}99{,}25{,}000 = Rs.\ 14{,}96{,}250$. Option (B). ✓

Quick check: Alternatively, 5% price rise on $3{,}15{,}000$ L $= 3{,}15{,}000 \times 5 \times (95/100) \approx 3{,}15{,}000 \times 4.75 = 14{,}96{,}250$. ✓

Why the other options fail:

- **(A) Rs. 14,63,400**: Uses diesel volume of 12240 L/day instead of 12600 L/day.
- **(C) Rs. 15,29,250**: Uses diesel volume of 12720 L/day instead of 12600 L/day.
- **(D) Rs. 15,62,000**: Over-counts the price rise by applying Rs. 5 to a different base.

Final Answer: Rs. 14,96,250

Answer: (B)

Go Back to Question 25

Q26.

Solution

Concept: SI $= \dfrac{P \times R \times T}{100}$. Here $T = 3$ years (given in question). Both P and R are still needed.

Solution:

Step 1 — Test Statement I alone: $P = Rs.\ 20{,}000$; R unknown. SI $= \dfrac{20000 \times R \times 3}{100}$ — depends on R. **Not sufficient.**

Step 2 — Test Statement II alone: $R = 8\%$; P unknown. SI $= \dfrac{P \times 8 \times 3}{100}$ — depends on P. **Not sufficient.**

Step 3 — Combine both: SI $= \dfrac{20000 \times 8 \times 3}{100} = Rs.\ \mathbf{4{,}800}$. **Sufficient.**

Quick check: $20000 \times 0.08 \times 3 = 4800$. ✓

Why the other options fail:

- **(A)**: Statement I alone cannot find SI without knowing the rate.
- **(B)**: Statement II alone cannot find SI without knowing the principal.
- **(D)**: Neither statement is individually sufficient.

Final Answer: (C) Both statements together are sufficient

Answer: (C)

Go Back to Question 26

Q27.

Solution

Concept: Both statements confirm that triangle PQR has a right angle at Q, but each does so independently.

Solution:

Step 1 — Test Statement I alone: $PQ^2 + QR^2 = PR^2$ is the Pythagorean theorem, confirming a right angle at Q (the vertex between the two legs). **Sufficient.**

Step 2 — Test Statement II alone: Angle $Q = 90°$ directly states a right angle at Q. **Sufficient.**

Step 3 — Conclusion: Each statement alone is sufficient. Option (D).

Quick check: Both I and II convey identical information — a right angle at Q in triangle PQR. Either alone completely answers the question. ✓

Why the other options fail:

- **(A)**: Statement II is also sufficient, so (A) understates the sufficiency.
- **(B)**: Statement I is also sufficient, so (B) understates the sufficiency.
- **(C)**: Both are individually sufficient, so "neither alone" is incorrect.

Final Answer: (D) Each statement alone is sufficient

Answer: (D)

Go Back to Question 27

Q28.

Solution

Concept: To find the unique value of $x + y$, we need to solve for x and y individually. Two independent equations are required.

Solution:

Step 1 — Test Statement I alone: $2x + 3y = 24$. One equation, two unknowns. Infinite solutions. $x + y$ is indeterminate. **Not sufficient.**

Step 2 — Test Statement II alone: $x - y = 2$. One equation, two unknowns. Infinite solutions. $x + y$ is indeterminate. **Not sufficient.**

Step 3 — Combine both: From II, $x = y + 2$. Substitute into I: $2(y + 2) + 3y = 24 \Rightarrow 5y = 20 \Rightarrow y = 4$, $x = 6$. So $x + y =$ **10. Sufficient.**

Quick check: $2(6) + 3(4) = 12 + 12 = 24$. ✓$6 - 4 = 2$. ✓$x + y = 10$. ✓

Why the other options fail:

- **(A)**: Statement I alone does not uniquely fix $x + y$.
- **(B)**: Statement II alone does not uniquely fix $x + y$.
- **(D)**: Neither statement alone is sufficient.

Final Answer: (C) Both statements together are sufficient

Answer: (C)

Go Back to Question 28

Q29.

Solution

Concept: Pass% $= \dfrac{\text{Passed}}{\text{Total}} \times 100$. The ratio of passed:failed alone determines the pass percentage.

Solution:

Step 1 — Test Statement I alone: 36 students passed. Total unknown (failed students unknown). Pass% indeterminate. **Not sufficient.**

Step 2 — Test Statement II alone: Passed : Failed $= 3:1$. So passed $= 3$ parts, total $= 4$ parts. Pass% $= \dfrac{3}{4} \times 100 = \mathbf{75\%}$. **Sufficient!**

Step 3 — Conclusion: Statement II alone is sufficient; Statement I alone is not. Option (B).

Quick check: If 36 passed and ratio is 3:1, then failed $= 12$, total $= 48$. Pass% $= 36/48 = 75\%$. But the % is already determinable from the ratio alone. ✓

Why the other options fail:

- **(A)**: Statement I alone does not give the total number of students.
- **(C)**: Statement II alone is already sufficient; no need to combine.
- **(D)**: Statement I alone is not sufficient, so (D) is incorrect.

Final Answer: (B) Statement II alone is sufficient

Answer: (B)

Go Back to Question 29

Q30.

Solution

Concept: Two-digit multiples of LCM$(4, 6) = 12$: list them, then apply the digit-sum filter.

Solution:

Step 1 — Test Statement I alone: Two-digit multiples of 12: 12, 24, 36, 48, 60, 72, 84, 96. Eight possibilities. **Not sufficient.**

Step 2 — Test Statement II alone: Digit sum $= 6$: possibilities are 15, 24, 33, 42, 51, 60, 69, 78, 87, 96. Many possibilities. **Not sufficient.**

Step 3 — Combine both: Multiples of 12 with digit sum 6: check list — 12 (sum=3), 24 (sum=6)✓, 36 (sum=9), 48 (sum=12), 60 (sum=6)✓, 72 (sum=9), 84 (sum=12), 96 (sum=15). Two numbers qualify: 24 and 60. **Still not unique; not sufficient.**

Quick check: Both 24 (multiple of 12, digit sum 6) and 60 (multiple of 12, digit sum 6) satisfy both statements. Two answers $\Rightarrow$ not uniquely determined.

Why the other options fail:

- **(A)**: Statement I has 8 candidates — clearly not sufficient alone.
- **(B)**: Statement II has 10 candidates — clearly not sufficient alone.
- **(D)**: Neither statement alone narrows to a unique answer.

Final Answer: (C) Data insufficient even with both statements

Answer: (C)

Go Back to Question 30

Answer Key

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