

CAT Data Interpretation & Logical Reasoning

Sample Paper – 6

Duration: 40 Minutes

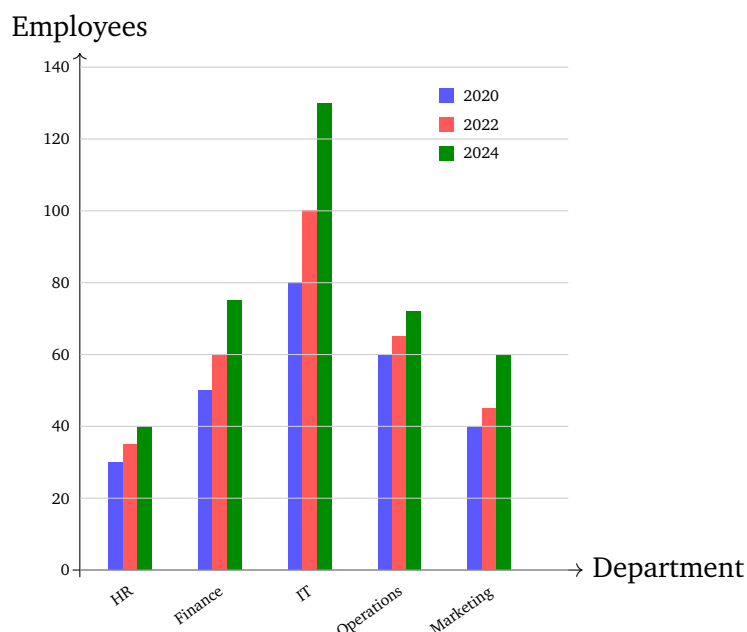
Maximum Marks: 60

Instructions

- This paper contains **20 questions** across **4 sets** (2 Data Interpretation + 2 Logical Reasoning), modelled on the DILR section of **CAT**.
- Each correct answer carries **+3 marks**. There is a penalty of **–1 mark per wrong answer**; **0** marks for unattempted questions.
- All 20 questions are single-correct MCQ. Maximum Marks: **60**.
- **No personal calculators** are permitted; a basic on-screen calculator is provided in the actual CAT exam.
- **Rough sheets** are provided at the test centre. Each set has a common data/scenario; read it carefully before attempting the questions.

Set A: Data Interpretation — Department-wise Employee Count (Q1 – Q5)

The grouped bar chart below shows the **employee count** in five departments of a company over three years: 2020, 2022, and 2024.



- Q1.** Based on the grouped bar chart above, which department had the **highest employee count** in the year **2022**?
- (A) Finance (60 employees)
 - (B) IT (100 employees)
 - (C) Operations (65 employees)
 - (D) HR (35 employees)
- Q2.** What was the **total employee count** across all five departments in the year **2020**?
- (A) 250
 - (B) 255
 - (C) 260
 - (D) 270
- Q3.** By what **percentage** did the **IT department's** headcount increase from 2020 to 2024?
- (A) 50%
 - (B) 55%
 - (C) 60%
 - (D) 62.5%
- Q4.** Which department showed the **least absolute increase** in employee count from 2020 to 2024?
- (A) HR (increase of 10 employees)
 - (B) Marketing (increase of 20 employees)
 - (C) Finance (increase of 25 employees)
 - (D) Operations (increase of 12 employees)
- Q5.** In 2024, what is the **ratio** of Marketing to Finance department employee count?



- (A) 3 : 4
- (B) 4 : 5
- (C) 5 : 6
- (D) 2 : 3

**Set B: Data Interpretation — Cricket
Tournament Points Table (Q6 – Q10)**

The table below shows the **final standings** of six teams in a round-robin cricket tournament. Every match produces a result (Win = 2 points, Loss = 0 points; no draws).

Team	Played	Won	Lost	Points
P	5	5	0	10
Q	5	4	1	8
R	5	3	2	6
S	5	2	3	4
T	5	1	4	2
U	5	0	5	0

- Q6.** Based on the points table above, which team occupies the **3rd position** (ranked by points)?
- (A) Q (8 points)
 - (B) S (4 points)
 - (C) R (6 points)
 - (D) T (2 points)
- Q7.** How many matches did team **T** **lose** in the tournament?
- (A) 2
 - (B) 3
 - (C) 5
 - (D) 4
- Q8.** What is the **total points** earned by all six teams combined?



- (A) 30
- (B) 25
- (C) 35
- (D) 20

Q9. A team is **promoted** if it wins more than 50% of its matches. How many teams are **promoted**?

- (A) 2
- (B) 3
- (C) 4
- (D) 5

Q10. What is the **average number of matches won** per team in the tournament?

- (A) 2
- (B) 3
- (C) 2.5
- (D) 3.5

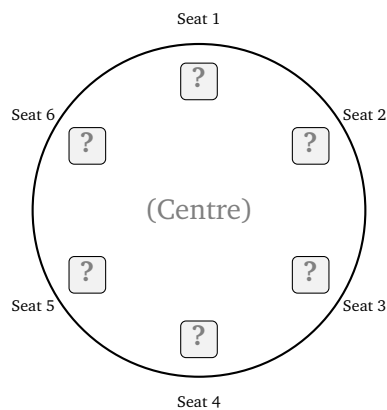
Set C: Logical Reasoning — Circular Seating Arrangement (Q11 – Q15)

Six people — P, Q, R, S, T, U — are seated around a **circular table** facing the centre. The seats are numbered 1 to 6 clockwise. The following conditions apply:

- (i) P and R are seated **directly opposite** each other (3 seats apart clockwise).
- (ii) Q sits **immediately to P's right** (clockwise from P).
- (iii) T sits **immediately to R's left** (counterclockwise from R, i.e., one seat before R going clockwise).
- (iv) S and U sit **adjacent** to each other.



(v) U is **NOT** adjacent to P.



Q11. Based on the seating conditions given above, who sits **directly opposite** to R?

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

Q12. Who sits **immediately to the left** of Q (counterclockwise from Q)?

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

Q13. Who sits **immediately to the right** of T (clockwise from T)?

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

Q14. How many people sit **between T and S** going **clockwise** from T (not counting T and S themselves)?



- (A) 1
- (B) 3
- (C) 2
- (D) 0

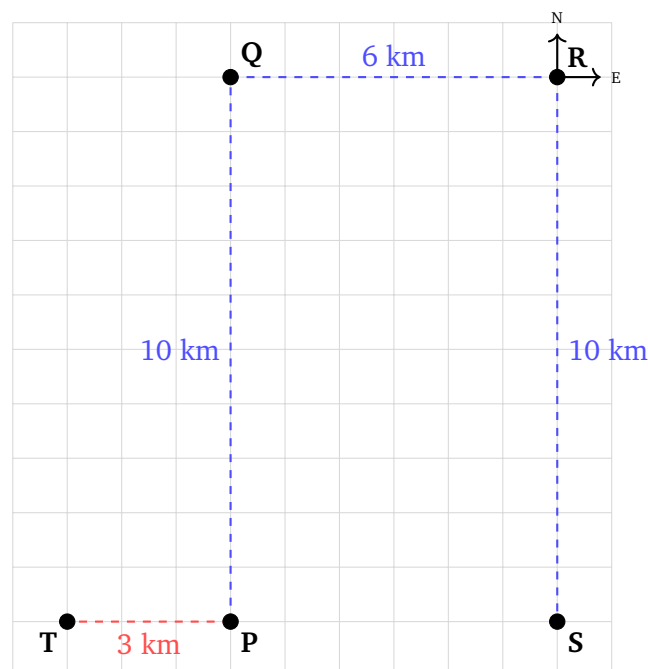
Q15. Which of the following pairs does **NOT** sit adjacent to each other?

- (A) (P, Q) — seats 1 and 2
- (B) (R, U) — seats 4 and 5
- (C) (T, R) — seats 3 and 4
- (D) (P, T) — seats 1 and 3

Set D: Logical Reasoning — Directions & Distance (Q16 – Q20)

Five towns P, Q, R, S, T are located on a grid. The following information is given:

- (i) Q is **10 km North** of P.
- (ii) R is **6 km East** of Q.
- (iii) S is **10 km South** of R.
- (iv) T is **3 km West** of P.



- Q16.** In which direction is town **S** from town **P**?
- (A) East
 - (B) North-East
 - (C) South-East
 - (D) West
- Q17.** What is the **straight-line distance** between town **P** and town **S**?
- (A) 3 km
 - (B) 6 km
 - (C) 10 km
 - (D) 8 km
- Q18.** In which direction is town **T** from town **Q**?
- (A) South
 - (B) West
 - (C) South-West
 - (D) North-West
- Q19.** What is the **straight-line distance** between town **Q** and town **R**?
- (A) 10 km
 - (B) 4 km
 - (C) 8 km
 - (D) 6 km
- Q20.** A new town **V** is located **exactly midway** between **P** and **S**. How far is **V** from **P**?
- (A) 3 km
 - (B) 6 km



(C) 5 km

(D) 4 km



Detailed Solutions**Sol. 1.****Solution**

Concept — Reading a Grouped Bar Chart: The red bars represent 2022 values. Identify the tallest red bar.

Step 1 — Read the 2022 employee counts for all departments: HR = 35, Finance = 60, IT = 100, Operations = 65, Marketing = 45.

Step 2 — Identify the highest: IT = 100 is the largest value among all five departments in 2022.

Why other options are wrong:

- Option A: Finance (60) — lower than IT (100) by 40 employees.
- Option C: Operations (65) — second highest in 2022, still below IT.
- Option D: HR (35) — lowest count among all departments in 2022.

Final Answer: IT had the highest employee count in 2022 (100 employees) ⇒ **B**

Answer: (B) [Go Back to Q 1](#)

Sol. 2.**Solution**

Concept — Column Summation: Add the 2020 employee counts (blue bars) for all five departments.

Step 1 — Identify 2020 values from the chart: HR = 30, Finance = 50, IT = 80, Operations = 60, Marketing = 40.

Step 2 — Sum all values:

$$30 + 50 + 80 + 60 + 40 = 260$$

Why other options are wrong:

- Option A: 250 — under-counts by 10; likely misreads one department (e.g., Operations as 50).
- Option B: 255 — under-counts by 5; small arithmetic slip.
- Option D: 270 — over-counts by 10; likely adds an extra 10 to one department.



Final Answer: Total 2020 employee count = 260 $\Rightarrow$ C

Answer: (C) [Go Back to Q 2](#)

Sol. 3.

Solution

Concept — Percentage Change: $\% \text{ change} = \frac{\text{New} - \text{Old}}{\text{Old}} \times 100.$

Step 1 — Identify IT department headcount: 2020 = 80 employees; 2024 = 130 employees.

Step 2 — Calculate percentage increase:

$$\% \text{ increase} = \frac{130 - 80}{80} \times 100 = \frac{50}{80} \times 100 = 62.5\%$$

Why other options are wrong:

- Option A: 50% — would imply new value = $80 \times 1.5 = 120$, not 130.
- Option B: 55% — would imply new value = $80 \times 1.55 = 124$, not 130.
- Option C: 60% — would imply new value = $80 \times 1.6 = 128$, not 130.

Final Answer: IT headcount increased by 62.5% $\Rightarrow$ D

Answer: (D) [Go Back to Q 3](#)

Sol. 4.

Solution

Concept — Absolute Difference: Absolute increase = 2024 count – 2020 count for each department.

Step 1 — Calculate absolute increases for all departments:

- HR: $40 - 30 = 10$ employees
- Finance: $75 - 50 = 25$ employees
- IT: $130 - 80 = 50$ employees
- Operations: $72 - 60 = 12$ employees
- Marketing: $60 - 40 = 20$ employees

Step 2 — Identify the minimum: HR has the least absolute increase at 10 em-



ployees.

Why other options are wrong:

- Option B: Marketing (+20) — second lowest absolute increase, but still double that of HR.
- Option C: Finance (+25) — third lowest; significantly higher than HR.
- Option D: Operations (+12) — second lowest, but still 2 more than HR.

Final Answer: HR showed the least absolute increase (10 employees) $\Rightarrow$ **A**

Answer: (A) [Go Back to Q 4](#)

Sol. 5.

Solution

Concept — Ratio in Lowest Terms: Divide both quantities by their HCF.

Step 1 — Read 2024 values: Marketing = 60 employees, Finance = 75 employees.

Step 2 — Find the ratio and simplify:

$$\text{Marketing : Finance} = 60 : 75$$

HCF of 60 and 75 is 15.

$$= \frac{60}{15} : \frac{75}{15} = 4 : 5$$

Why other options are wrong:

- Option A: 3:4 — $3/4 = 0.75$, but $60/75 = 0.8$; not equal.
- Option C: 5:6 — $5/6 \approx 0.833$, but $60/75 = 0.8$; not equal.
- Option D: 2:3 — $2/3 \approx 0.667$, but $60/75 = 0.8$; not equal.

Final Answer: Marketing : Finance = 4 : 5 in 2024 $\Rightarrow$ **B**

Answer: (B) [Go Back to Q 5](#)



Sol. 6.

Solution

Concept — Ranking by Points: Sort teams from highest to lowest points to find the 3rd-place team.

Step 1 — List teams in descending order of points:

- 1st: P (10 points)
- 2nd: Q (8 points)
- 3rd: R (6 points)
- 4th: S (4 points)
- 5th: T (2 points)
- 6th: U (0 points)

Step 2 — Identify the 3rd-place team: R with 6 points occupies 3rd position.

Why other options are wrong:

- Option A: Q (8 points) — occupies 2nd place, not 3rd.
- Option B: S (4 points) — occupies 4th place.
- Option D: T (2 points) — occupies 5th place.

Final Answer: Team R is in 3rd position $\Rightarrow$ C

Answer: (C) [Go Back to Q 6](#)

Sol. 7.

Solution

Concept — Reading the Table: The “Lost” column directly gives the number of matches each team lost.

Step 1 — Read team T’s row from the table: T: Played = 5, Won = 1, Lost = 4, Points = 2.

Step 2 — Verify consistency: Won + Lost = $1 + 4 = 5 =$ Played $\checkmark$. Points = $2 \times 1 = 2 \checkmark$.

Why other options are wrong:

- Option A: 2 — that is the number of matches team R lost (R has Won=3, Lost=2).
- Option B: 3 — that is the number of matches team S lost.



- Option C: 5 — U lost all 5 matches; T lost only 4.

Final Answer: Team T lost 4 matches $\Rightarrow$ D

Answer: (D) [Go Back to Q 7](#)

Sol. 8.

Solution

Concept — Summing a Column: Add the Points column for all six teams.

Step 1 — List all points: P = 10, Q = 8, R = 6, S = 4, T = 2, U = 0.

Step 2 — Sum:

$$10 + 8 + 6 + 4 + 2 + 0 = 30$$

Alternative approach: In a round-robin with 6 teams, total matches = $\binom{6}{2} = 15$. Each match distributes 2 points, so total points = $15 \times 2 = 30 \checkmark$.

Why other options are wrong:

- Option B: 25 — not achievable; total matches give exactly 30 points.
- Option C: 35 — over-counts; 35 would require some matches giving more than 2 points.
- Option D: 20 — under-counts; would require some matches giving 0 total points.

Final Answer: Total combined points = 30 $\Rightarrow$ A

Answer: (A) [Go Back to Q 8](#)

Sol. 9.

Solution

Concept — Promotion Criterion: A team is promoted if it wins $> 50\%$ of 5 matches, i.e., wins > 2.5 , which means winning at least 3 matches.

Step 1 — Check each team's win count:

- P: 5 wins $> 2.5 \Rightarrow$ Promoted $\checkmark$
- Q: 4 wins $> 2.5 \Rightarrow$ Promoted $\checkmark$
- R: 3 wins $> 2.5 \Rightarrow$ Promoted $\checkmark$



- S: 2 wins $\not>$ 2.5 $\Rightarrow$ Not promoted
- T: 1 win $\not>$ 2.5 $\Rightarrow$ Not promoted
- U: 0 wins $\not>$ 2.5 $\Rightarrow$ Not promoted

Step 2 — Count promoted teams: P, Q, R $\Rightarrow$ 3 teams are promoted.

Why other options are wrong:

- Option A: 2 — would exclude R (3 wins), but 3 wins $>$ 2.5 qualifies R.
- Option C: 4 — would include S (2 wins), but 2 wins is not $>$ 2.5.
- Option D: 5 — would include T (1 win) as well, but 1 win $\not>$ 2.5.

Final Answer: 3 teams (P, Q, R) are promoted $\Rightarrow$ **B**

Answer: (B) [Go Back to Q 9](#)

Sol. 10.

Solution

Concept — Arithmetic Mean: Average wins = $\frac{\text{Total wins}}{\text{Number of teams}}$.

Step 1 — Sum up all wins: $5 + 4 + 3 + 2 + 1 + 0 = 15$ total wins.

Step 2 — Divide by number of teams:

$$\text{Average} = \frac{15}{6} = 2.5 \text{ wins per team}$$

Why other options are wrong:

- Option A: 2 — would require total wins of $2 \times 6 = 12$, but actual total is 15.
- Option B: 3 — would require total wins of $3 \times 6 = 18$, but actual total is 15.
- Option D: 3.5 — would require total wins of $3.5 \times 6 = 21$, which exceeds actual total.

Final Answer: Average wins per team = 2.5 $\Rightarrow$ **C**

Answer: (C) [Go Back to Q 10](#)



Sol. 11.

Solution

Concept — Circular Arrangement Deduction: Apply each condition systematically to determine the unique arrangement.

Step 1 — Place P and R using condition (i): P and R are directly opposite (3 seats apart in a 6-seat table). Let P = Seat 1, then R = Seat 4.

Step 2 — Place Q using condition (ii): Q sits immediately clockwise from P: Q = Seat 2.

Step 3 — Place T using condition (iii): T sits immediately counterclockwise from R (one seat before R clockwise): T = Seat 3.

Step 4 — Place S and U using conditions (iv) and (v): Remaining seats: 5 and 6 for S and U. Seats 5 and 6 are adjacent ✓ (condition iv).

P is at Seat 1; seats adjacent to P are Seat 2 (Q) and Seat 6. Condition (v): U is NOT adjacent to P, so $U \neq \text{Seat 6}$. Therefore U = Seat 5 and S = Seat 6.

Final arrangement (clockwise): P(1), Q(2), T(3), R(4), U(5), S(6).

Who is directly opposite R (Seat 4)? Seat 4's opposite is Seat 1 = P.

Why other options are wrong:

- Option A: Q (Seat 2) — opposite of Seat 2 is Seat 5 (U), not R.
- Option B: S (Seat 6) — opposite of Seat 6 is Seat 3 (T), not R.
- Option C: U (Seat 5) — opposite of Seat 5 is Seat 2 (Q), not R.

Final Answer: P sits directly opposite R $\Rightarrow$ **D**

Answer: (D) [Go Back to Q 11](#)

Sol. 12.

Solution

Concept — Adjacent Position (Left = Counterclockwise): The person immediately to Q's left is the one at the seat numbered one less than Q's seat (counterclockwise).

Step 1 — Identify Q's seat: From the derived arrangement: Q = Seat 2.

Step 2 — Identify the seat immediately counterclockwise from Q: Seat 2 - 1 = Seat 1. From the arrangement, Seat 1 = P.



Why other options are wrong:

- Option B: T (Seat 3) — T is immediately to Q's *right* (clockwise from Q), not left.
- Option C: R (Seat 4) — R is two seats clockwise from Q.
- Option D: S (Seat 6) — S is four seats clockwise from Q (or two counter-clockwise).

Final Answer: P sits immediately to the left of Q $\Rightarrow$ A

Answer: (A) [Go Back to Q 12](#)

Sol. 13.**Solution**

Concept — Adjacent Position (Right = Clockwise): The person immediately to T's right is the one at the next seat clockwise.

Step 1 — Identify T's seat: From the derived arrangement: T = Seat 3.

Step 2 — Identify the seat immediately clockwise from T: Seat 3 + 1 = Seat 4.
From the arrangement, Seat 4 = R.

Why other options are wrong:

- Option A: P (Seat 1) — P is two seats counterclockwise from T, not immediately clockwise.
- Option C: Q (Seat 2) — Q is immediately to T's left (counterclockwise from T), not right.
- Option D: S (Seat 6) — S is three seats counterclockwise from T.

Final Answer: R sits immediately to the right of T $\Rightarrow$ B

Answer: (B) [Go Back to Q 13](#)

Sol. 14.**Solution**

Concept — Counting People Between Two Seats Clockwise: Starting from T and going clockwise, count persons encountered before reaching S (not including T and S).



Step 1 — Identify seat numbers: T = Seat 3, S = Seat 6. Going clockwise from Seat 3: Seat 4 (R), Seat 5 (U), Seat 6 (S).

Step 2 — Count persons between T and S (exclusive): Seat 4 (R) and Seat 5 (U) lie between T and S going clockwise $\Rightarrow$ **2 persons**.

Why other options are wrong:

- Option A: 1 — would be correct only if one of R or U were skipped; both seats 4 and 5 lie strictly between 3 and 6.
- Option B: 3 — would require 3 intermediate seats between 3 and 6 clockwise, but only 2 exist (seats 4 and 5).
- Option D: 0 — would mean T and S are adjacent, but seats 3 and 6 have two seats between them.

Final Answer: 2 people (R and U) sit between T and S going clockwise $\Rightarrow$ **C**

Answer: (C) [Go Back to Q 14](#)

Sol. 15.

Solution

Concept — Adjacency in a Circular Arrangement: Two people are adjacent if their seat numbers differ by 1 (or by 5 in a 6-seat circle, i.e., seats 1 and 6 are adjacent).

Arrangement: P(1), Q(2), T(3), R(4), U(5), S(6).

Step 1 — Check each pair:

- (P, Q): Seats 1 and 2 — difference = 1 $\Rightarrow$ **Adjacent**
- (R, U): Seats 4 and 5 — difference = 1 $\Rightarrow$ **Adjacent**
- (T, R): Seats 3 and 4 — difference = 1 $\Rightarrow$ **Adjacent**
- (P, T): Seats 1 and 3 — difference = 2 $\Rightarrow$ **NOT Adjacent**

Step 2 — Identify the non-adjacent pair: (P, T) with seats 1 and 3 are separated by seat 2 (Q), so they are not adjacent.

Why other options are wrong:

- Option A: (P, Q) — seats 1 and 2 are adjacent (differ by 1).
- Option B: (R, U) — seats 4 and 5 are adjacent (differ by 1).
- Option C: (T, R) — seats 3 and 4 are adjacent (differ by 1).



Final Answer: (P, T) do not sit adjacent to each other $\Rightarrow$ D

Answer: (D) [Go Back to Q 15](#)

Sol. 16.

Solution

Concept — Cardinal Directions on a Grid: Establish coordinates and compare.

Step 1 — Assign coordinates: P = (0, 0) as the reference. Q is 10 km North: Q = (0, 10). R is 6 km East of Q: R = (6, 10). S is 10 km South of R: S = (6, 0). T is 3 km West of P: T = (-3, 0).

Step 2 — Determine direction of S from P: P = (0, 0), S = (6, 0). S has the same y -coordinate as P (both 0) but a larger x -coordinate ($6 > 0$). Moving only along the positive x -axis means S is due **East** of P.

Why other options are wrong:

- Option B: North-East — would require S to be both north and east of P; S has the same latitude ($y=0$).
- Option C: South-East — would require S to have a smaller y -value than P; both have $y = 0$.
- Option D: West — west means smaller x ; S has $x = 6 > 0$, so S is east, not west.

Final Answer: S is due East of P $\Rightarrow$ A

Answer: (A) [Go Back to Q 16](#)

Sol. 17.

Solution

Concept — Straight-Line Distance (Pythagoras / Direct Reading):

Step 1 — Identify coordinates: P = (0, 0), S = (6, 0).

Step 2 — Calculate straight-line distance:

$$d(P, S) = \sqrt{(6-0)^2 + (0-0)^2} = \sqrt{36} = 6 \text{ km}$$

Since both towns lie on the same horizontal line ($y = 0$), the distance equals the



horizontal separation directly.

Why other options are wrong:

- Option A: 3 km — this is the distance from P to T (3 km West), not to S.
- Option C: 10 km — this is the North–South distance (P to Q, or R to S), not P to S.
- Option D: 8 km — no segment in the given layout measures 8 km.

Final Answer: Straight-line distance from P to S = 6 km $\Rightarrow$ **B**

Answer: (B) [Go Back to Q 17](#)

Sol. 18.

Solution

Concept — Relative Direction Between Two Points: Compare coordinates to determine the general compass direction.

Step 1 — Identify coordinates: $Q = (0, 10)$, $T = (-3, 0)$.

Step 2 — Analyse the displacement from Q to T: $\Delta x = -3 - 0 = -3$ (negative $\Rightarrow$ West component).

$\Delta y = 0 - 10 = -10$ (negative $\Rightarrow$ South component).

Both components are negative, so T is to the **South-West** of Q.

Why other options are wrong:

- Option A: South — pure south would require $\Delta x = 0$; here $\Delta x = -3 \neq 0$.
- Option B: West — pure west would require $\Delta y = 0$; here $\Delta y = -10 \neq 0$.
- Option D: North-West — north-west requires $\Delta y > 0$ (north), but $\Delta y = -10 < 0$ (south).

Final Answer: T is South-West of Q $\Rightarrow$ **C**

Answer: (C) [Go Back to Q 18](#)



Sol. 19.

Solution**Concept — Straight-Line Distance (Given Directly by a Leg):****Step 1 — Identify coordinates:** $Q = (0, 10)$, $R = (6, 10)$.**Step 2 — Calculate straight-line distance:**

$$d(Q, R) = \sqrt{(6 - 0)^2 + (10 - 10)^2} = \sqrt{36 + 0} = 6 \text{ km}$$

This is consistent with condition (ii): R is 6 km East of Q.

Why other options are wrong:

- Option A: 10 km — this is the North–South distance (P to Q), not Q to R.
- Option B: 4 km — no segment in the layout measures 4 km.
- Option C: 8 km — no segment in the layout measures 8 km.

Final Answer: Straight-line distance from Q to R = 6 km $\Rightarrow$ **D****Answer: (D)** [Go Back to Q 19](#)

Sol. 20.

Solution**Concept — Midpoint and Distance:** Midpoint of two points = $\left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right)$.**Step 1 — Identify coordinates of P and S:** $P = (0, 0)$, $S = (6, 0)$.**Step 2 — Calculate midpoint V:**

$$V = \left(\frac{0 + 6}{2}, \frac{0 + 0}{2} \right) = (3, 0)$$

Step 3 — Calculate distance from P to V:

$$d(P, V) = \sqrt{(3 - 0)^2 + (0 - 0)^2} = \sqrt{9} = 3 \text{ km}$$

Why other options are wrong:

- Option B: 6 km — this is the full distance from P to S, not half of it.



- Option C: 5 km — no geometric basis; midpoint of a 6-km segment is 3 km from each end.
- Option D: 4 km — over-estimates; the midpoint is exactly 3 km from P.

Final Answer: V is 3 km from P $\Rightarrow$ A

Answer: (A) [Go Back to Q 20](#)



Answer Key

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

Quick Reference: Correct Answers

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

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