

CAT Data Interpretation & Logical Reasoning

Sample Paper – 9

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 — Hospital Department Patient Admissions (Q1 – Q5)

The table below shows the **annual patient admissions** across four hospital departments for the years 2020, 2021, and 2022.

Department	2020	2021	2022
Cardiology	1200	1350	1500
Orthopaedics	800	900	1000
Neurology	600	720	840
Oncology	400	480	560
Total	3000	3450	3900

Q1. What is the **total admissions** across **ALL departments** in the year **2021**?

- (A) 3000
(B) 3200



(C) 3400

(D) 3450

Q2. Which department had the **highest admissions** in **2022**?

(A) Cardiology (1500)

(B) Orthopaedics (1000)

(C) Neurology (840)

(D) Oncology (560)

Q3. By what **percentage** did **total admissions** increase from **2020 to 2022**?

(A) 25%

(B) 30%

(C) 35%

(D) 40%

Q4. Which department had the **LOWEST 3-year total admissions** (2020 + 2021 + 2022)?

(A) Neurology

(B) Orthopaedics

(C) Oncology

(D) Cardiology

Q5. What is the **total Neurology admissions** across all three years?

(A) 1960

(B) 2000

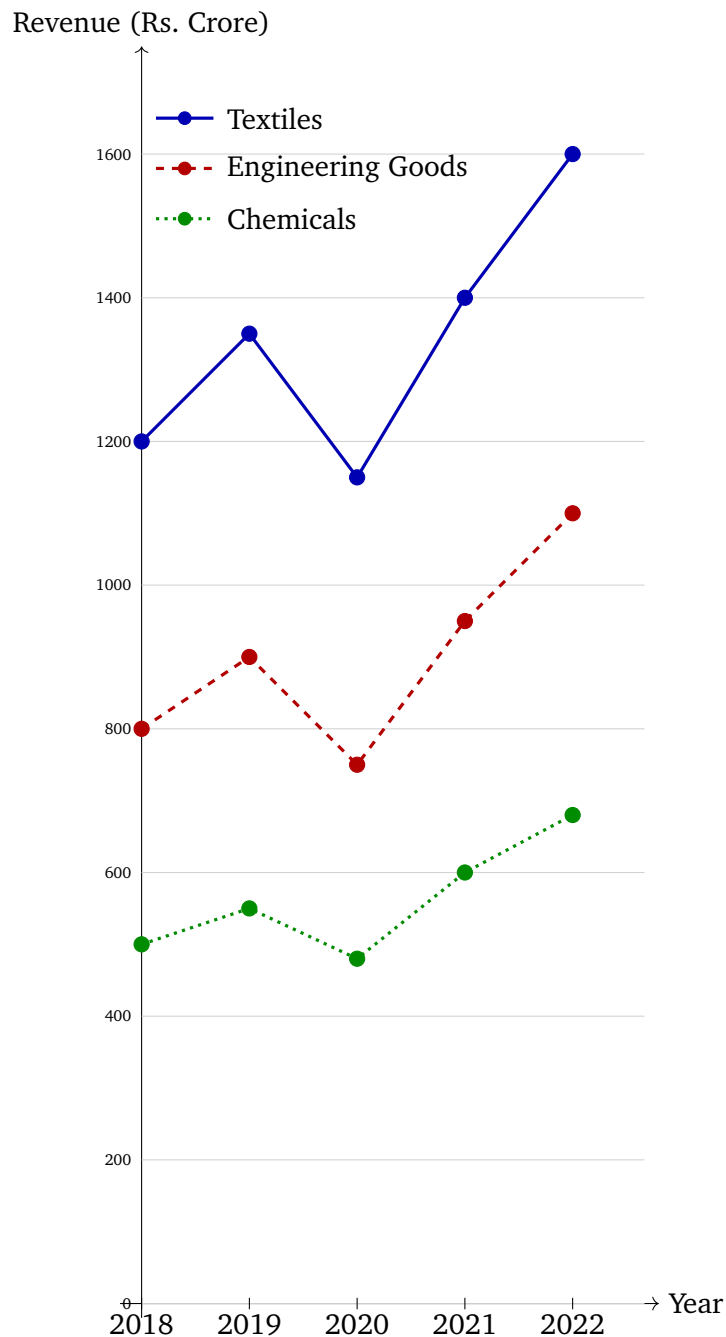
(C) 2100

(D) 2160



Set B: Data Interpretation — Export Revenue by Product Category (Q6 – Q10)

The line graph below shows the **export revenue** (in Rs. Crore) for three product categories — Textiles, Engineering Goods, and Chemicals — from the year 2018 to 2022.



Q6. In which year did the exports of **ALL THREE** categories **simultaneously decline** compared to the previous year?

- (A) 2020
(B) 2019



(C) 2021

(D) 2022

Q7. What is the **total Textiles export revenue** across all 5 years (2018–2022)?

(A) Rs. 6500 Crore

(B) Rs. 6700 Crore

(C) Rs. 6900 Crore

(D) Rs. 7100 Crore

Q8. What is the **percentage change** in **Engineering Goods** export revenue from **2018 to 2022**?

(A) 30%

(B) 35%

(C) 37.5%

(D) 40%

Q9. Which category had the **highest export revenue** in the year **2019**?

(A) Chemicals (Rs. 550 Crore)

(B) Engineering Goods (Rs. 900 Crore)

(C) All three categories were equal

(D) Textiles (Rs. 1350 Crore)

Q10. What were the **total exports** (all 3 categories combined) in the year **2021**?

(A) Rs. 2950 Crore

(B) Rs. 2800 Crore

(C) Rs. 3000 Crore

(D) Rs. 3100 Crore

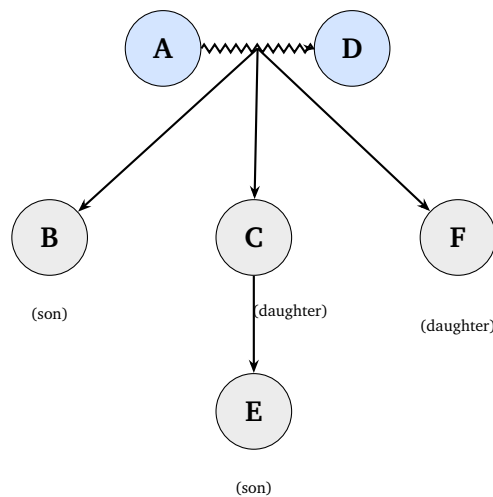


**Set C: Logical Reasoning — Blood
Relations Puzzle (Q11 – Q15)**

In a family of **six members** — A, B, C, D, E, F — the following relationships hold:

- (i) A is the **father** of B.
- (ii) B is the **brother** of C and F.
- (iii) D is the **mother** of C.
- (iv) E is the **son** of C.
- (v) F is the **sister** of B.
- (vi) A and D are the **parents** of B, C, and F.

(C is a daughter, B is a son, F is a daughter.)



Q11. How is E related to D?

- (A) Son
- (B) Grandson
- (C) Nephew
- (D) Uncle

Q12. How is A related to E?

- (A) Father



- (B) Uncle
- (C) Grandfather
- (D) Brother

Q13. How many **MALE members** are there in the family based on the given information?

- (A) 1
- (B) 2
- (C) 4
- (D) 3

Q14. How is F related to E?

- (A) Maternal Aunt
- (B) Paternal Aunt
- (C) Mother
- (D) Sister

Q15. If **G is the husband of C**, how is **G** related to **B**?

- (A) Brother
- (B) Brother-in-law
- (C) Father
- (D) Uncle

Set D: Logical Reasoning — Performance Score Rankings (Q16 – Q20)

Five candidates — P, Q, R, S, T — appeared for a performance test. Their scores determine a **unique ranking** (Rank 1 = highest scorer, Rank 5 = lowest scorer). No two candidates share a rank. The following conditions apply:

- (i) P scored **more than** Q.
- (ii) Q scored **more than** S.



- (iii) S scored **more than** T.
- (iv) R scored the **highest** among all five.
- (v) P scored **less than** R.

?	?	?	?	?
Rank 1	Rank 2	Rank 3	Rank 4	Rank 5

Q16. Who is ranked **3rd**?

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

Q17. What is **T's** rank?

- (A) 1st
- (B) 2nd
- (C) 3rd
- (D) 5th

Q18. Who is ranked **immediately below P** (i.e., one rank lower than P)?

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

Q19. How many candidates scored **MORE than S**?

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



(D) 4

Q20. If R and T swap their scores, who would score the **HIGHEST**?

(A) R

(B) P

(C) T

(D) Q



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

Concept — Row Summation: Read the Total row for 2021 directly from the table.

Step 1 — Identify all department admissions in 2021: Cardiology = 1350, Orthopaedics = 900, Neurology = 720, Oncology = 480.

Step 2 — Sum all values: $1350 + 900 + 720 + 480 = 3450$.

Why other options are wrong:

- Option A: 3000 — this is the 2020 total, not 2021.
- Option B: 3200 — arithmetic error; under-counts by 250.
- Option C: 3400 — under-counts by 50; misreads one department value.

Final Answer: Total admissions in 2021 = 3450 $\Rightarrow$ **D**

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

Sol. 2.**Solution**

Concept — Comparing Values within a Column: Read the 2022 column and identify the largest value.

Step 1 — Read 2022 admissions for each department:

- Cardiology: 1500
- Orthopaedics: 1000
- Neurology: 840
- Oncology: 560

Step 2 — Compare and identify the highest: $1500 > 1000 > 840 > 560$. Cardiology had the highest admissions in 2022.

Why other options are wrong:

- Option B: Orthopaedics (1000) — second highest in 2022, not the maximum.
- Option C: Neurology (840) — third highest in 2022.
- Option D: Oncology (560) — lowest among all four departments in 2022.



Final Answer: Cardiology had the highest 2022 admissions (1500) $\Rightarrow$ **A**

Answer: (A) [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 the total admissions in 2020 and 2022: 2020 total = 3000; 2022 total = 3900.

Step 2 — Calculate the percentage increase:

$$\% \text{ increase} = \frac{3900 - 3000}{3000} \times 100 = \frac{900}{3000} \times 100 = 30\%$$

Why other options are wrong:

- Option A: 25% — would imply 2022 total = $3000 \times 1.25 = 3750$, not 3900.
- Option C: 35% — would imply 2022 total = $3000 \times 1.35 = 4050$, not 3900.
- Option D: 40% — would imply 2022 total = $3000 \times 1.40 = 4200$, not 3900.

Final Answer: Total admissions increased by 30% from 2020 to 2022 $\Rightarrow$ **B**

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

Sol. 4.

Solution

Concept — Row Summation and Comparison: Compute the 3-year total for each department and identify the minimum.

Step 1 — Calculate 3-year totals for each department:

- Cardiology: $1200 + 1350 + 1500 = 4050$
- Orthopaedics: $800 + 900 + 1000 = 2700$
- Neurology: $600 + 720 + 840 = 2160$
- Oncology: $400 + 480 + 560 = 1440$

Step 2 — Identify the lowest 3-year total: $1440 < 2160 < 2700 < 4050$. Oncology has the lowest total.



Why other options are wrong:

- Option A: Neurology (2160) — second lowest, but higher than Oncology's 1440.
- Option B: Orthopaedics (2700) — third from the bottom; significantly higher than Oncology.
- Option D: Cardiology (4050) — highest 3-year total among all departments.

Final Answer: Oncology had the lowest 3-year total (1440) $\Rightarrow$ **C**

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

Sol. 5.**Solution**

Concept — Column Summation: Add all three yearly values for the Neurology department.

Step 1 — Identify Neurology admissions for each year: 2020 = 600, 2021 = 720, 2022 = 840.

Step 2 — Sum all values: $600 + 720 + 840 = 2160$.

Why other options are wrong:

- Option A: 1960 — significantly under-counts; likely misreads one or more yearly values.
- Option B: 2000 — under-counts by 160; perhaps uses 2020 = 560 instead of 600.
- Option C: 2100 — under-counts by 60; arithmetic error in the summation.

Final Answer: Total Neurology admissions across 3 years = 2160 $\Rightarrow$ **D**

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

Sol. 6.**Solution**

Concept — Identifying a Simultaneous Decline: Check year-on-year changes for all three categories and find the year when all three declined together.

Step 1 — Track year-on-year changes for each category:



- **2019 vs 2018:** Textiles $1350 > 1200$ (up); Engineering $900 > 800$ (up); Chemicals $550 > 500$ (up). *All increased.*
- **2020 vs 2019:** Textiles $1150 < 1350$ (down); Engineering $750 < 900$ (down); Chemicals $480 < 550$ (down). *All three declined.*
- **2021 vs 2020:** Textiles $1400 > 1150$ (up); Engineering $950 > 750$ (up); Chemicals $600 > 480$ (up). *All increased.*
- **2022 vs 2021:** Textiles $1600 > 1400$ (up); Engineering $1100 > 950$ (up); Chemicals $680 > 600$ (up). *All increased.*

Step 2 — Identify the year with a simultaneous decline: Only 2020 saw all three categories decline compared to 2019.

Why other options are wrong:

- Option B: 2019 — all three categories increased from 2018 to 2019.
- Option C: 2021 — all three categories increased from 2020 to 2021.
- Option D: 2022 — all three categories increased from 2021 to 2022.

Final Answer: All three export categories declined simultaneously in 2020 $\Rightarrow$ A

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

Sol. 7.

Solution

Concept — Column Summation: Add the Textiles revenue across all five years.

Step 1 — Read Textiles revenue for each year: 2018 = 1200, 2019 = 1350, 2020 = 1150, 2021 = 1400, 2022 = 1600.

Step 2 — Sum all values: $1200 + 1350 + 1150 + 1400 + 1600 = 6700$ crore.

Why other options are wrong:

- Option A: Rs. 6500 Crore — under-counts by 200; likely misreads one year's value.
- Option C: Rs. 6900 Crore — over-counts by 200; arithmetic error in addition.
- Option D: Rs. 7100 Crore — over-counts by 400; uses incorrect values for one or more years.

Final Answer: Total Textiles export revenue over 5 years = Rs. 6700 Crore $\Rightarrow$ B

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



Sol. 8.

Solution

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

Step 1 — Read Engineering Goods revenue for 2018 and 2022: 2018 = 800 crore; 2022 = 1100 crore.

Step 2 — Calculate the percentage increase:

$$\% \text{ increase} = \frac{1100 - 800}{800} \times 100 = \frac{300}{800} \times 100 = 37.5\%$$

Why other options are wrong:

- Option A: 30% — would imply 2022 value = $800 \times 1.30 = 1040$, not 1100.
- Option B: 35% — would imply 2022 value = $800 \times 1.35 = 1080$, not 1100.
- Option D: 40% — would imply 2022 value = $800 \times 1.40 = 1120$, not 1100.

Final Answer: Engineering Goods revenue increased by 37.5% from 2018 to 2022
 $\Rightarrow$

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

Sol. 9.

Solution

Concept — Comparing Values within a Row: Read the 2019 values for all three categories and find the maximum.

Step 1 — Read 2019 export revenue for each category:

- Textiles: Rs. 1350 Crore
- Engineering Goods: Rs. 900 Crore
- Chemicals: Rs. 550 Crore

Step 2 — Compare and identify the highest: $1350 > 900 > 550$. Textiles had the highest export revenue in 2019.

Why other options are wrong:

- Option A: Chemicals (Rs. 550 Crore) — lowest among the three in 2019.
- Option B: Engineering Goods (Rs. 900 Crore) — second highest in 2019, below Textiles.



- Option C: All equal — the three categories have clearly different 2019 values.

Final Answer: Textiles had the highest export revenue in 2019 (Rs. 1350 Crore)

⇒ D

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

Sol. 10.

Solution

Concept — Row Summation: Add the 2021 values across all three categories.

Step 1 — Read 2021 export revenue for each category: Textiles = 1400, Engineering Goods = 950, Chemicals = 600.

Step 2 — Sum all categories: $1400 + 950 + 600 = 2950$ crore.

Why other options are wrong:

- Option B: Rs. 2800 Crore — under-counts by 150; misreads one category's value.
- Option C: Rs. 3000 Crore — over-counts by 50; uses slightly higher values for one category.
- Option D: Rs. 3100 Crore — over-counts by 150; uses incorrect values for one or more categories.

Final Answer: Total exports in 2021 = Rs. 2950 Crore ⇒ A

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

Sol. 11.

Solution

Concept — Blood Relations (Two-Step Derivation): Trace the relationship from E up through C to D.

Step 1 — Identify E's parent: From condition (iv): E is the son of C. So C is E's mother.

Step 2 — Identify D's relationship to C: From condition (iii): D is the mother of C. So D is C's mother, i.e., D is E's maternal grandmother.

Step 3 — Derive the relationship: D is the mother of C, and C is the mother of



E. Therefore E is D's **grandson**.

Why other options are wrong:

- Option A: Son — E is D's grandson, not son (there is an intermediate generation through C).
- Option C: Nephew — nephew applies across siblings' children; E is directly in D's descending line.
- Option D: Uncle — uncle is an ascending-generation lateral relation; E is below D in the family tree.

Final Answer: E is D's grandson $\Rightarrow$ **B**

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

Sol. 12.

Solution

Concept — Blood Relations (Two-Step Derivation): Trace the relationship from A down through C to E.

Step 1 — Identify A's relationship to C: From conditions (i) and (vi): A is the father of B, C, and F. So A is C's father.

Step 2 — Identify C's relationship to E: From condition (iv): E is the son of C. So C is E's mother.

Step 3 — Derive the relationship: A is C's father, and C is E's mother. Therefore A is E's **grandfather** (maternal grandfather).

Why other options are wrong:

- Option A: Father — A is C's father, but E is C's son, so A is one generation above C who is one generation above E; A is E's grandfather, not father.
- Option B: Uncle — uncle is a lateral relation; A is in the direct ascending lineage of E.
- Option D: Brother — A and E are two generations apart; they cannot be brothers.

Final Answer: A is E's grandfather $\Rightarrow$ **C**

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



Sol. 13.

Solution**Concept — Counting by Gender from Given Information:****Step 1 — Identify members explicitly stated to be male:**

- A — described as *father* (male).
- B — described as *brother* and *son* (male).
- E — described as *son* (male).

Step 2 — Identify members explicitly stated to be female:

- D — described as *mother* (female).
- C — stated to be a daughter (female).
- F — described as *sister* and stated to be a daughter (female).

Step 3 — Count male members: Males: A, B, E = 3 male members.**Why other options are wrong:**

- Option A: 1 — severely under-counts; ignores B and E who are explicitly male.
- Option B: 2 — under-counts by 1; perhaps ignores E.
- Option C: 4 — over-counts; there are only 3 explicitly male members in the given information.

Final Answer: There are 3 male members (A, B, E) $\Rightarrow$ DAnswer: (D) [Go Back to Q 13](#)

Sol. 14.

Solution**Concept — Blood Relations (Lateral Relation via Common Parent):****Step 1 — Identify F's relationship to C:** From condition (vi): A and D are the parents of B, C, and F. From condition (v): F is the sister of B. Therefore F and C share the same parents — F is C's sister.**Step 2 — Identify E's relationship to C:** From condition (iv): E is the son of C. So C is E's mother.

Step 3 — Derive the relationship: F is C's sister, and C is E's mother. Therefore F is the sister of E's mother, i.e., F is E's **maternal aunt**.

Why other options are wrong:

- Option B: Paternal Aunt — paternal aunt is the sister of the father (i.e., sister of C's husband G); F is the sister of C (the mother), so she is the maternal aunt.
- Option C: Mother — C is E's mother, not F.
- Option D: Sister — F and E are not in the same generation; F is one generation above E.

Final Answer: F is E's maternal aunt $\Rightarrow$ **A**

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

Sol. 15.

Solution

Concept — Marriage-Based Relation: When a person marries a sibling's spouse, they become that sibling's in-law.

Step 1 — Identify B's relationship to C: From conditions (ii) and (vi): B and C share the same parents (A and D). B is the brother of C.

Step 2 — Identify G's relationship to C: G is the husband of C (given in the question).

Step 3 — Derive G's relationship to B: G married C, who is B's sister. The husband of one's sister is called a **brother-in-law**.

Why other options are wrong:

- Option A: Brother — G is not a blood brother of B; G is related to B only by marriage through C.
- Option C: Father — G would be B's father-in-law only if G's daughter married B; that is not the case here.
- Option D: Uncle — uncle implies a generational difference; G and B are in the same generation.

Final Answer: G is B's brother-in-law $\Rightarrow$ **B**

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



Sol. 16.

Solution

Concept — Logical Deduction (Ranking Puzzle): Chain the inequalities to derive the unique ranking.

Step 1 — Apply condition (iv): R scored the highest $\Rightarrow$ R = **Rank 1**.

Step 2 — Apply condition (v) and (i): $R > P$ (condition v) and $P > Q$ (condition i) $\Rightarrow R > P > Q$.

Step 3 — Apply conditions (ii) and (iii): $Q > S$ (condition ii) and $S > T$ (condition iii) $\Rightarrow Q > S > T$.

Step 4 — Combine the full chain: $R > P > Q > S > T \Rightarrow$ Ranks: R=1, P=2, Q=3, S=4, T=5.

Therefore the candidate ranked 3rd is **Q**.

Why other options are wrong:

- Option A: S — S is ranked 4th, not 3rd.
- Option B: P — P is ranked 2nd, not 3rd.
- Option D: T — T is ranked 5th (last), not 3rd.

Final Answer: Q is ranked 3rd $\Rightarrow$

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

Sol. 17.

Solution

Concept — Reading the Derived Ranking: From Sol. 16, the full ranking is R=1, P=2, Q=3, S=4, T=5.

Step 1 — Locate T in the ranking: T holds **Rank 5** (lowest scorer).

Step 2 — Verify with the chain: The chain $R > P > Q > S > T$ confirms T is last.

Why other options are wrong:

- Option A: 1st — Rank 1 is held by R (highest scorer).
- Option B: 2nd — Rank 2 is held by P.
- Option C: 3rd — Rank 3 is held by Q.

Final Answer: T is ranked 5th $\Rightarrow$



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

Sol. 18.

Solution

Concept — Adjacent Ranks: The candidate “immediately below P” has a rank one higher number (one rank lower) than P.

Step 1 — Identify P’s rank: From the derived ranking: P = Rank 2.

Step 2 — Identify who holds Rank 3: From the derived ranking: Q = Rank 3. Q is immediately below P.

Why other options are wrong:

- Option B: S — S is at Rank 4, two ranks below P, not immediately below.
- Option C: R — R is at Rank 1, which is above P, not below.
- Option D: T — T is at Rank 5, three ranks below P.

Final Answer: Q (Rank 3) is immediately below P (Rank 2) $\Rightarrow$ **A**

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

Sol. 19.

Solution

Concept — Counting Candidates with Higher Ranks: Identify all candidates ranked above S (i.e., with a lower rank number than S).

Step 1 — Identify S’s rank: From the derived ranking: S = Rank 4.

Step 2 — List candidates ranked above S (Ranks 1, 2, 3):

- Rank 1: R
- Rank 2: P
- Rank 3: Q

That gives **3 candidates** who scored more than S.

Why other options are wrong:

- Option A: 1 — significantly under-counts; only 1 candidate (R) is not correct as P and Q also scored more.



- Option C: 2 — under-counts by 1; R and P scored more but so did Q.
- Option D: 4 — over-counts; T scored less than S (Rank 5 < Rank 4), so only 3 candidates scored more.

Final Answer: 3 candidates (R, P, Q) scored more than S $\Rightarrow$ **B**

Answer: (B) [Go Back to Q 19](#)

Sol. 20.

Solution

Concept — Effect of a Swap: If R and T swap their scores, T takes R's (original highest) score and R takes T's (original lowest) score.

Step 1 — Identify R's and T's original scores/ranks: R = Rank 1 (highest scorer); T = Rank 5 (lowest scorer).

Step 2 — Apply the swap: After the swap: T holds R's original score (the highest). The remaining candidates P, Q, S are unaffected. Therefore T now has the highest score.

Step 3 — Verify the new order: New ranking: T (original R score) > P > Q > S > R (original T score).

Why other options are wrong:

- Option A: R — after the swap R holds T's original (lowest) score; R would be ranked last, not first.
- Option B: P — P retains its original Rank 2 score; it was never the highest and remains second.
- Option D: Q — Q retains its Rank 3 score; it was never the highest and remains third.

Final Answer: T would score the highest after the swap $\Rightarrow$ **C**

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



Answer Key

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

Quick Reference: Correct Answers

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

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