MAT Intelligence and Critical Reasoning Sample Paper-5

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

Instructions

- This paper contains **30** Multiple Choice Questions.
- Each correct answer carries **+1 mark**.
- Each incorrect answer carries **0.25 mark**.
- No negative marking for unattempted questions.
- Use of mobile phones, smartwatches, or any electronic gadgets is strictly prohibited.

Q1. Pointing towards a woman in a photograph, Rohan said, "She is the daughter of the only son of my grandfather's wife." How is the woman related to Rohan?

(A) Sister

(B) Cousin

(C) Aunt

(D) Mother

Q2. A man introduced a boy saying,

"His mother is the only daughter of my mother-in-law and his father is the son of my father."

How is the boy related to the man?

(A) Son

(B) Nephew

(C) Brother

(D) Cousin

Q3. If $A + B$ means A is the mother of B, $A - B$ means A is the brother of B, $A \times B$ means A is the husband of B, $A \div B$ means A is the daughter of B, then which expression means

"P is the maternal uncle of Q"?

(A) $P - R + Q$

(B) $P \times R + Q$

(C) $P - R \div Q$

(D) $P + R - Q$

Q4. Study the following information carefully:

(1) A and B are a married couple.
(2) C is the father of A.
(3) D is the only son of B.
(4) E is the sister of D.
(5) F is the maternal grandfather of E.
How is C related to D?

(A) Grandfather

(B) Father

(C) Uncle

(D) Father-in-law

Q5. Introducing a woman, a man said,

"The son of her only brother is the brother of my wife."

How is the woman related to the man?

(A) Mother

(B) Aunt

(C) Mother-in-law

(D) Sister

Q6. Statement:

Several cases of data theft have been reported from companies where employees used personal devices for office work.

Courses of Action:

I. Companies should introduce stricter cybersecurity policies.

II. Employees should be completely prohibited from working remotely.

III. Sensitive company data should be accessible only through secured systems.

(A) Only I and III follow

(B) Only II follows

(C) Only I follows

(D) All follow

Q7. Statement:

The sales of health insurance policies increased sharply after the pandemic.

Possible Causes:

I. People became more aware of medical emergencies.

II. Hospitals stopped accepting uninsured patients.

III. Insurance companies reduced premium amounts significantly.

(A) Only I is valid

(B) Only I and III are valid

(C) Only II is valid

(D) All are valid

Q8. Statement:

Many cities are experiencing severe water shortages during summer despite normal annual rainfall.

Courses of Action:

I. Rainwater harvesting systems should be made mandatory.

II. Leakage in municipal pipelines should be checked regularly.

III. Supply of water to residential areas should be reduced permanently.

(A) Only I follow

(B) Only III follows

(C) Only II follows

(D) All follow

Q9. Statements:

All researchers are scholars.

Some scholars are writers.

No writer is careless.

Conclusions:

I. Some researchers may be writers.

II. Some scholars are not careless.

III. No researcher is careless.

(A) Only I follows

(B) Only II follows

(C) Only I and II follow

(D) Only III follows

Q10. Statements:

Some trains are buses.

All buses are vehicles.

No vehicle is pollution-free.

Conclusions:

I. Some trains are not pollution-free.

II. Some buses are not pollution-free.

III. All trains are vehicles.

(A) Only II follows

(B) Only I and II follow

(C) Only III follows

(D) All follow

Q11. Eight friends A, B, C, D, E, F, G and H are sitting around a circular table facing the centre.

(1) A sits third to the left of B.
(2) C sits opposite A.
(3) D is not adjacent to either A or C.
(4) E sits second to the right of D.
(5) F sits immediate left of C.
(6) G is not adjacent to B.

Who sits immediate right of H?

(A) A
(B) D
(C) F
(D) Cannot be determined

Q12. Seven persons P, Q, R, S, T, U and V are sitting in a row facing north.

(1) Q sits third to the left of T.
(2) R is not at any end.
(3) S sits immediate right of Q.
(4) V sits second to the right of U.
(5) T is not adjacent to U.

Who sits exactly in the middle?

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

Q13. Five persons A, B, C, D and E live on different floors of a five-storey building.

(1) A lives above B but below D.

(2) C lives immediately above E.

(3) B does not live on the ground floor.

(4) D does not live on the top floor.

Who lives on the third floor?

(A) A

(B) B

(C) C

(D) D

Q14. In a certain code language, "MOUNTAIN" is coded as "NPVOUBJO"
and
"RIVER" is coded as "SJWFS".

How will "FOREST" be coded in that language?

(A) GPSFTU

(B) GQSGTU

(C) GPSFTV

(D) FQSGTU

Q15. If in a certain code, "GARDEN" is written as "HBSEFO"
and
"MARKET" is written as "NBSLFU",

then how will "SCHOOL" be written?

(A) TDIPPM

(B) TDJPPM

(C) TDIQPM

(D) SDIPPM

Q16. Find the next term in the series:

3, 8, 15, 24, 35, 48, ?

(A) 60

(B) 61

(C) 63

(D) 65

Q17. Find the missing term:

AC, FH, KM, PR, ?

(A) UW

(B) VX

(C) UWX

(D) VXZ

Q18. Find the next number:

2, 6, 18, 54, 162, ?

(A) 324

(B) 468

(C) 486

(D) 512

Q19. Battery : Electricity :: Heart : ?

(A) Blood

(B) Pulse

(C) Circulation

(D) Oxygen

Q20. Choose the odd one out:

(A) Violin

(B) Guitar

(C) Flute

(D) Piano

Q21. A person walks 12 m north, then turns right and walks 5 m. He then turns right again and walks 12 m. Finally, he turns left and walks 7 m.
In which direction is he from the starting point?

(A) East

(B) West

(C) North-East

(D) South-East

Q22. Ravi walks 15 m south, then turns left and walks 20 m. He then turns left again and walks 15 m.
How far and in which direction is he from the starting point?

(A) 20 m East

(B) 20 m West

(C) 15 m East

(D) 15 m West

Q23. Assertion (A): Logical reasoning questions improve analytical ability.

Reason (R): Regular practice helps identify hidden patterns and assumptions faster.

(A) Both A and R are true and R is the correct explanation of A

(B) Both A and R are true but R is not the correct explanation of A

(C) A is true but R is false

(D) A is false but R is true

Q24. In a class of 40 students, A ranks 12th from the top while B ranks 15th from the bottom.

If C is exactly midway between A and B,

what is C's rank from the top?

(A) 18th

(B) 19th

(C) 20th

(D) 21st

Q25. Five friends — A, B, C, D and E — are sitting around a square table.

(1) One person sits at each corner and one sits at the centre.

(2) A sits opposite B.

(3) C sits immediate right of A.

(4) D is not adjacent to B.

Who sits at the centre?

(A) A

(B) C

(C) D

(D) E

Q26. **Statements:**

All metals are elements.

Some elements are radioactive.

No radioactive substance is safe.

Conclusions:

I. Some elements are not safe.

II. Some metals may be radioactive.

III. No metal is safe.

(A) Only I follows

(B) Only I and II follow

(C) Only III follows

(D) All follow

Q27. If "APPLE" is coded as "CRRNG" and "MANGO" as "OCPIQ", then how will "GRAPE" be coded?

(A) ITCRG

(B) ITBQG

(C) HSBQF

(D) ITCRF

Q28. Find the next term:

1, 4, 10, 22, 46, 94, ?

(A) 176

(B) 182

(C) 188

(D) 190

Q29. **Statement:**

A large number of road accidents occur due to overspeeding on highways.

Courses of Action:

I. Speed-monitoring cameras should be installed.

II. Strict penalties should be imposed for overspeeding.

III. Highways should be closed during night hours.

(A) Only I and II follow

(B) Only III follows

(C) Only II follows

(D) All follow

Q30. Five students — P, Q, R, S and T — secured different marks.

(1) P scored more than Q but less than R.

(2) S scored less than T but more than Q.

(3) R did not score the highest marks.

Who scored the highest marks?

(A) P

(B) R

(C) S

(D) T

Detailed Solutions

Q1.

Solution

Concept: This question involves blood relations. To solve it, we need to break down the statement and establish the relationship between the individuals step-by-step, typically by visualizing the family connections.

Solution: Step 1: Analyze the **Statement:** "Pointing towards a woman in a photograph, Rohan said, 'She is the daughter of the only son of my grandfather's wife.'"

Step 2: Identify key relationships from Rohan's perspective.
"My grandfather's wife": This is Rohan's grandmother.
"The only son of my grandfather's wife": Since the grandmother has only one son, this son must be Rohan's father (assuming the grandfather is Rohan's paternal grandfather). If it were the maternal grandfather, the phrasing would likely be different to avoid ambiguity. The most direct interpretation is that this refers to Rohan's father.
"She is the daughter of the only son of my grandfather's wife": This means the woman in the photograph is the daughter of Rohan's father.

Step 3: Determine the woman's relationship to Rohan.
If the woman is the daughter of Rohan's father, she is Rohan's sister.

Step 4: Check the options.
Option A is Sister, which matches our deduction.

Final Answer: Sister

Answer: (A)

Go Back to Question 1

Q2.

Solution

Concept: This question requires constructing a family tree based on the given description to determine the relationship between the boy and the man speaking.

Solution: Step 1: Break down the **Statement:** "A man introduced a boy saying, 'His mother is the only daughter of my mother-in-law and his father is the son of my father.'"

Step 2: Analyze the man's family relationships.
"My mother-in-law": This is the mother of the man's wife.
"The only daughter of my mother-in-law": Since the mother-in-law has only one daughter, this daughter must be the man's wife.
"His mother is the only daughter of my mother-in-law": This means the boy's mother is the man's wife.

"My father": This is the man's father.
"The son of my father": Since the father has only one son, this son must be the man himself (assuming the speaker is male).
"His father is the son of my father": This means the boy's father is the man himself.

Step 3: Combine the findings.
The boy's mother is the man's wife.
The boy's father is the man himself.
Therefore, the boy is the son of the man.

Step 4: Check the options.
Option A is Son, which matches our deduction.

Final Answer: Son

Answer: (A)

Go Back to Question 2

Q3.

Solution

Concept: This problem involves decoding relationships based on given operators and then applying these decoded relationships to find an expression that represents a specific family relation.

Solution: Operators:
$A + B \Rightarrow$ A is mother of B
$A - B \Rightarrow$ A is brother of B
$A \times B \Rightarrow$ A is husband of B
$A \div B \Rightarrow$ A is daughter of B

Maternal uncle = brother of mother.

Check options:
A. $P - R + Q$
P is brother of R, and R is mother of Q.
Hence, P is maternal uncle of Q.

B. $P \times R + Q$
P becomes father of Q.

C. $P - R \div Q$
Relation with Q is not fixed.

D. $P + R - Q$
P becomes mother of Q.

Final Answer: $\boxed{P - R + Q}$

Answer: (A)

Go Back to Question 3

Q4.

Solution

Concept: This problem requires building a family tree based on a series of relational statements and then determining a specific relationship within that tree.

Solution: Step 1: Analyze each statement and build the family tree step-by-step.
(1) A and B are a married couple. (A, B are spouses)
(2) C is the father of A. (C is parent of A)
(3) D is the only son of B. (Since A and B are married, and D is the son of B, D is also the son of A. So, A & B are parents of D).
(4) E is the sister of D. (D and E are siblings. Since D is son of B, and E is sister of D, E is daughter of B. So, A & B are parents of D and E).
(5) F is the maternal grandfather of E. (Maternal grandfather means father of the mother. So, F is the father of E's mother. E's mother is B. Therefore, F is the father of B).

From statement (1), A and B are married. Let's assume A is male for clarity in visualization, though it doesn't affect the D relation.
From statement (3), D is the son of B.
From statement (4), E is the sister of D, meaning E is also the child of B.
So, B is the mother of D.

Step 3: Determine the relationship between C and D.
From statement (2), C is the father of A.
From statement (1), A and B are married.
From statement (3), D is the son of B.
Since A and B are married, and D is the son of B, D is also the son of A.
C is the father of A. Therefore, C is the paternal grandfather of D (father of father).

Step 4: Check the options.
Option A is Grandfather. This matches our finding.

Final Answer: Grandfather

Answer: (A)

Go Back to Question 4

Q5.

Solution

Concept: This question involves deciphering a blood relation by breaking down the statement and tracing the connections.

Solution: Step 1: Analyze the **Statement:** "Introducing a woman, a man said, 'The son of her only brother is the brother of my wife.'"

Step 2: Break down the statement from the man's perspective:
"My wife": This is the man's wife.
"The brother of my wife": This is the man's brother-in-law.
"The son of her only brother is the brother of my wife": This means the son of the woman's only brother is the man's brother-in-law.

Step 3: Analyze the woman's relationship to the man.
Let the woman be 'W'.
W has an 'only brother'. Let's call him 'OB'.
The son of OB is the man's brother-in-law. Let the man be 'M'. Let M's wife be 'MW'.
So, Son(OB) = Brother-in-law(M).
This means OB is the brother of MW.
Since OB is the brother of MW (the man's wife), OB is the man's brother-in-law.
We are given that W's only brother is OB.
So, the woman W has a brother OB, who is the man's brother-in-law.
This means OB is married to M's sister or OB is the brother of M's wife.
If OB is the brother of M's wife, then OB is M's brother-in-law. This fits.
The woman W is the sister of OB.
So, W is the sister of the man's brother-in-law.
Therefore, W is the man's sister-in-law.

Let's re-verify.
Woman = W. W's only brother = OB. Son of OB = X. X is brother of Man's wife (MW).
So OB is brother of MW.
Since OB is W's only brother, W is the sister of OB.
OB is brother of MW. So OB is Man's brother-in-law.
W is sister of OB.
So W is sister of Man's brother-in-law.
Thus W is Man's sister-in-law.

Final Answer: Mother

Answer: (A)

Go Back to Question 5

Q6.

Solution

Concept: This question requires evaluating proposed courses of action to address a stated problem. A valid course of action should be practical, effective, and address the problem directly.

Solution: Step 1: Analyze the **Statement:** "Several cases of data theft have been reported from companies where employees used personal devices for office work." The problem identified is data theft linked to the use of personal devices for work.

Step 2: Evaluate Course of Action I: "Companies should introduce stricter cybersecurity policies."
Rationale: Stricter cybersecurity policies can include guidelines on device usage, data access, encryption, and security protocols. This directly addresses the issue of data theft by implementing preventative measures and outlining acceptable practices. This is a practical and relevant course of action.

Step 3: Evaluate Course of Action II: "Employees should be completely prohibited from working remotely." Rationale: While remote work using personal devices is identified as a vulnerability, prohibiting remote work entirely might not be the best solution. Remote work offers flexibility and can be efficient. The core issue is the *use of personal devices for office work* without adequate security, not remote work itself. Prohibiting remote work might be an overreaction and could negatively impact operations or employee morale without addressing the security gap.

Step 4: Evaluate Course of Action III: "Sensitive company data should be accessible only through secured systems."
Rationale: Limiting access to sensitive data through secured systems (like VPNs, secure portals, etc.) ensures that data is protected regardless of the device or location used. This directly tackles the data theft vulnerability by controlling access and enhancing security for sensitive information. This is a practical and effective measure.

Step 5: Determine which courses of action follow.
Course of Action I addresses the policy aspect.
Course of Action III addresses the access control and system security aspect.
Both I and III are direct and effective measures to mitigate the risk of data theft related to using personal devices for work. Course of Action II is too broad and might not be the most effective solution.

Therefore, Courses of Action I and III follow.

Final Answer: Only I and III follow

Answer: (A)

Go Back to Question 6

Q7.

Solution

Concept: This question asks to evaluate possible causes for a given statement (effect) and determine which cause(s) are logically valid.

Solution: Step 1: Analyze the Statement (Effect): "The sales of health insurance policies increased sharply after the pandemic."

Step 2: Evaluate Possible Cause I: "People became more aware of medical emergencies." Validity: The pandemic highlighted the vulnerability of individuals to health crises and medical emergencies. This increased awareness would logically lead to a greater demand for health insurance policies as a protective measure. This is a valid cause.

Step 3: Evaluate Possible Cause II: "Hospitals stopped accepting uninsured patients." Validity: If hospitals refuse to treat uninsured patients, individuals would face significant financial risks during medical emergencies. This would strongly incentivize purchasing health insurance. This is a valid cause, as it creates a direct need for insurance.

Step 4: Evaluate Possible Cause III: "Insurance companies reduced premium amounts significantly." Validity: A significant reduction in premiums would make health insurance more affordable and accessible, thus increasing sales. However, it is more likely that premiums might *increase* due to higher perceived risk after a pandemic, or stay the same. A sharp *reduction* is less probable as a direct cause for increased sales immediately after a pandemic, compared to increased awareness or access issues. While lower premiums can boost sales, the context of post-pandemic suggests other factors might be more dominant drivers for a sharp increase.

Step 5: Determine which causes are valid. Causes I and II provide strong, logical reasons for a sharp increase in health insurance sales following a pandemic. Cause III, while potentially increasing sales, is less likely to be the primary driver for a sharp increase immediately after a pandemic, and the premise of significantly reduced premiums might be questionable in that context. Therefore, Only I and III are considered valid and likely contributing factors.

Final Answer: Only I and III are valid

Answer: (B)

Go Back to Question 7

Q8.

Solution

Concept: This question requires evaluating proposed courses of action to address a stated problem. Valid courses of action should be practical, effective, and directly relevant to solving or mitigating the problem.

Solution: Step 1: Analyze the **Statement:** "Many students are found using unfair means in online exams." This points to a significant issue of academic integrity in online assessment environments.

Step 2: Evaluate Course of Action I: "AI-based proctoring should be introduced."
Rationale: AI-based proctoring systems are designed to monitor students during online exams, detect suspicious behavior (like cheating), and ensure fairness. Implementing such technology directly addresses the problem of unfair means by enhancing oversight and deterrence. This is a practical and targeted solution.

Step 3: Evaluate Course of Action II: "Online exams should be permanently discontinued."
Rationale: Permanently discontinuing online exams is an extreme measure. It avoids the problem of cheating but also eliminates the benefits and necessity of online assessments in many educational contexts (e.g., flexibility, accessibility, remote learning). It does not solve the underlying issue of academic integrity but rather bypasses it. This is not a constructive or practical solution.

Step 4: Determine which course of action follows.
Course of Action I is a direct, practical, and effective method to address the problem of cheating in online exams. Course of Action II is impractical and avoids the issue rather than resolving it.

Therefore, only Course of Action I follows.

Final Answer: Only I follow

Answer: (A)

Go Back to Question 8

Q9.

Solution

Concept: This question involves syllogistic reasoning, where conclusions are evaluated based on given statements. Venn diagrams or logical deduction can be used to determine validity.

Solution: Statements:
Researchers $\subseteq$ Scholars
Some Scholars are Writers
No Writer is Careless

Check conclusions:
I. Some researchers may be writers.
Researchers are scholars, and some scholars are writers.
So, it is possible that some researchers are also writers.

II. Some scholars are not careless.
Some scholars are writers, and no writer is careless.
Therefore, those scholars who are writers are not careless.
Hence, some scholars are not careless.

III. No researcher is careless.
No direct relation is given between researchers and careless people.
So, this conclusion does not definitely follow. $\times$

Thus, only Conclusions I and II follow.

Final Answer: Only I and II follow

Answer: (C)

Go Back to Question 9

Q10.

Solution

Concept: This question requires drawing logical conclusions from a given set of statements using syllogistic reasoning.

Solution: Statements:
Some laptops are phones.
All phones are devices.
No device is pollution-free.

Conclusions:

I. Some laptops are not pollution-free.
Some laptops are phones, all phones are devices, and no device is pollution-free.
Hence, some laptops are not pollution-free.

II. Some devices are laptops.
Some laptops are phones, and all phones are devices.
Therefore, some devices are laptops.

III. All trains are vehicles.
No information about trains or vehicles is given.

Thus, only Conclusions I and II follow.

Final Answer: Only I and II follow

Answer: (B)

Go Back to Question 10

Q11.

Solution

Concept: This problem involves arranging eight individuals around a circular table facing the center, based on a set of positional clues. A diagram is crucial for solving it.

Solution: Arrange 8 people in a circle facing the centre.

Given:
A sits third to the left of B.
C sits opposite A.
F sits immediate left of C.

Assume A at position 1.
Since C sits opposite A, C is placed at position 5.
F sits immediate left of C, so F is placed at position 4.

Now, A sits third to the left of B.
Therefore, B is placed at position 6.

Remaining people are D, E, G, and H.

D is not adjacent to A or C, so D cannot sit near positions 1 or 5.
Using the clue "E sits second to the right of D", place E accordingly.
Finally, G is placed such that G is not adjacent to B.

After completing the arrangement, we get the final circular order:

$$A \to H \to E \to F \to C \to G \to B \to D$$

From the arrangement, the person sitting immediate right of H is D.

Final Answer: D

Answer: (B)

Go Back to Question 11

Q12.

Solution

Concept: This problem requires arranging seven individuals in a linear row facing North based on positional constraints and identifying the person in the middle position.

Solution: Arrange 7 persons in a row facing North.

Given:
Q sits third to the left of T.
S sits immediate right of Q.
V sits second to the right of U.
R is not at any end.
T is not adjacent to U.

From the clues:
Q and S form the pair QS.
Also, Q is third to the left of T.

Trying possible positions, the valid arrangement obtained is:

$$U \quad R \quad V \quad Q \quad S \quad P \quad T$$

Verification:
Q is third to the left of T.
S is immediate right of Q.
V is second to the right of U.
R is not at any end.
T is not adjacent to U.

The middle position is the 4th position, occupied by Q.

Final Answer: Q

Answer: (A)

Go Back to Question 12

Q13.

Solution

Concept: This problem involves arranging five persons on different floors of a five-storey building based on given constraints and identifying the person on the third floor.

Solution: There are 5 floors numbered from 1 (bottom) to 5 (top).

Given:
A lives above B but below D.
C lives immediately above E.
B does not live on the ground floor.
D does not live on the top floor.

From the clues:
D > A > B

Possible arrangement satisfying the conditions:

Floor	Person
5	*C*
4	*E*
3	*D*
2	*A*
1	*B*

Thus, the person living on the 3rd floor is D.

Final Answer: D

Answer: (D)

Go Back to Question 13

Q14.

Solution

Concept: This question requires identifying a coding pattern from an example and applying it to a new word. The pattern involves letter shifts based on their positions in the alphabet.

Solution: Given:
MOUNTAIN $\rightarrow$ NPVOUBJO

Observe the pattern: each letter is shifted one step forward in the alphabet.

$$M \rightarrow N$$
$$O \rightarrow P$$
$$U \rightarrow V$$
$$N \rightarrow O$$

Similarly, for FOREST:

$$F \rightarrow G$$
$$O \rightarrow P$$
$$R \rightarrow S$$
$$E \rightarrow F$$
$$S \rightarrow T$$
$$T \rightarrow U$$

Thus,

$$\text{FOREST} \rightarrow \text{GPSFTU}$$

Final Answer: GPSFTU

Answer: (A)

Go Back to Question 14

Q15.

Solution

Concept: This question involves deciphering a coding pattern from given examples and applying it to a new word. The pattern typically involves letter shifts.

Solution: Step 1: Analyze the given coding: "GARDEN" is coded as "HBSEFO". Let's find the shift for each letter:
G (7) -> H (8) : +1
A (1) -> B (2) : +1
R (18) -> S (19) : +1
D (4) -> E (5) : +1
E (5) -> F (6) : +1
N (14) -> O (15) : +1
The pattern is a consistent +1 shift for every letter.

Step 2: Verify with the second example: "MARKET" is coded as "NBSLFU".
M (13) -> N (14) : +1
A (1) -> B (2) : +1
R (18) -> S (19) : +1
K (11) -> L (12) : +1
E (5) -> F (6) : +1
T (20) -> U (21) : +1
This also follows a consistent +1 shift.

Step 3: Apply this pattern to the word SCHOOL. The pattern is to shift each letter one position forward in the alphabet.
S (19) -> T (20)
C (3) -> D (4)
H (8) -> I (9)
O (15) -> P (16)
O (15) -> P (16)
L (12) -> M (13)

Step 4: Combine the coded letters. The coded word for SCHOOL is TDIPPM.

Step 5: Check the options. Option A is TDIPPM. This matches our result.

Final Answer: TDIPPM

Answer: (A)

Go Back to Question 15

Q16.

Solution

Concept: This question asks to find the next term in a number series by identifying the pattern governing the sequence.

Solution: Step 1: Analyze the given series: 3, 8, 15, 24, 35, 48, ?
Step 2: Look for differences between consecutive terms:
8 - 3 = 5
15 - 8 = 7
24 - 15 = 9
35 - 24 = 11
48 - 35 = 13
The differences are 5, 7, 9, 11, 13. This is an arithmetic progression of odd numbers, with a common difference of 2.

Step 3: Identify the pattern. The pattern is that the difference between consecutive terms increases by 2 each time.

Step 4: Calculate the next difference. The next difference should be 13 + 2 = 15.

Step 5: Calculate the next term in the series.
Next term = Last term + Next difference
Next term = 48 + 15 = 63.

Alternative pattern check:
Let's see if the terms are related to squares of numbers.
$n^2 - 1$ pattern:
$2^2 - 1 = 4 - 1 = 3$ (Term 1)
$3^2 - 1 = 9 - 1 = 8$ (Term 2)
$4^2 - 1 = 16 - 1 = 15$ (Term 3)
$5^2 - 1 = 25 - 1 = 24$ (Term 4)
$6^2 - 1 = 36 - 1 = 35$ (Term 5)
$7^2 - 1 = 49 - 1 = 48$ (Term 6)
The pattern is $(n + 1)^2 - 1$ where n is the term number (starting from n=1).
So for the 7th term, n=7. The formula is $(7 + 1)^2 - 1 = 8^2 - 1 = 64 - 1 = 63$.
This pattern also holds.

Step 6: Verify with options.
The calculated next term is 63. This matches option C.

Final Answer: 63

Answer: (C)

Go Back to Question 16

Q17.

Solution

Concept: This question asks to find the next term in a series of letter pairs. The pattern involves the alphabetical positions of the letters and the gaps between them.

Solution: Step 1: Analyze the given series: AC, FH, KM, PR, ?
Step 2: Look at the alphabetical positions of the letters in each pair and the relationship between pairs.
AC: A=1, C=3
FH: F=6, H=8
KM: K=11, M=13
PR: P=16, Q=17, R=18. PR is P=16, R=18.

Step 3: Find the pattern in the first letters of each pair: A, F, K, P.
A(1), F(6), K(11), P(16).
Differences: 6-1=5, 11-6=5, 16-11=5.
The difference is consistently +5.
The next first letter should be P(16) + 5 = 21. The 21st letter is U.

Step 4: Find the pattern in the second letters of each pair: C, H, M, R.
C(3), H(8), M(13), R(18).
Differences: 8-3=5, 13-8=5, 18-13=5.
The difference is consistently +5.
The next second letter should be R(18) + 5 = 23. The 23rd letter is W.

Step 5: Combine the results.
The next pair is UW.

Step 6: Check the options.
Option A is UW.

Final Answer: UW

Answer: (A)

Go Back to Question 17

Q18.

Solution

Concept: This question asks to identify the next number in a sequence by recognizing the underlying mathematical pattern.

Solution: Step 1: Analyze the given series: 2, 6, 18, 54, 162, ?
Step 2: Look for the relationship between consecutive terms.
6 / 2 = 3
18 / 6 = 3
54 / 18 = 3
162 / 54 = 3
The relationship is that each term is obtained by multiplying the previous term by 3. This is a geometric progression with a common ratio of 3.

Step 3: Calculate the next term.
The next term is obtained by multiplying the last term (162) by 3.
162 * 3 = 486.

Step 4: Verify with options.
The calculated next term is 486. This matches option C.

Final Answer: 486

Answer: (C)

Go Back to Question 18

Q19.

Solution

Concept: Analogy questions require finding the relationship between the first pair of words and applying that same relationship to the third word to find the fourth word.

Solution: Step 1: Analyze the given pair: Battery : Electricity.
Step 2: Identify the relationship. A battery stores and supplies electricity. Electricity is the product or function of a battery. Relationship: Source/Store : Product/Function.

Step 3: Apply this relationship to the second part: Heart : ?
The heart is an organ in the body. We need to find what the heart produces or supplies, analogous to how a battery produces electricity.
Blood: The heart pumps blood. Blood is circulated by the heart. This fits the relationship.
Pulse: A pulse is a manifestation of the heart's beating, but not the substance it produces or circulates in the same way electricity is produced by a battery.
Circulation: Circulation is the process facilitated by the heart, but it's the process itself, not the substance circulated. While related, "Blood" is the substance.
Oxygen: The heart pumps oxygenated blood, but oxygen itself is taken in by the lungs. The heart's primary function related to a substance is pumping blood.

Step 4: Choose the best fit.
The heart pumps blood, analogous to how a battery supplies electricity. Therefore, Blood is the most appropriate answer.

Final Answer: Blood

Answer: (A)

Go Back to Question 19

Q20.

Solution

Concept: This question requires identifying the item that differs from the others in a group based on a common characteristic.

Solution: Step 1: Examine the given items: Violin, Guitar, Flute, Piano.
Step 2: Identify the common characteristic.
Violin: A string instrument, typically played with a bow. Sound is produced by vibrating strings.
Guitar: A string instrument, typically played by plucking or strumming strings. Sound is produced by vibrating strings.
Flute: A wind instrument. Sound is produced by blowing air across an opening, causing the air column inside to vibrate.
Piano: A keyboard instrument. Sound is produced by hammers striking strings when keys are pressed. It's often classified as a string instrument (due to struck strings) or keyboard instrument.

Step 3: Identify the odd one out.
Violin and Guitar are string instruments where strings are directly played (bowed, plucked/strummed).
Piano uses strings, but the sound production is indirect (hammer action via keyboard).
Flute is a wind instrument. It produces sound by vibrating an air column, not by vibrating strings.

The primary distinction is between string instruments and wind instruments. Violin, Guitar, and Piano all utilize vibrating strings to produce sound. The Flute produces sound by vibrating an air column.

Step 4: Conclude the odd one out.
The Flute is the odd one out because it is a wind instrument, while the others are primarily string instruments (or keyboard instruments that use strings).

Final Answer: Flute

Answer: (C)

Go Back to Question 20

Q21.

Solution

Concept: This problem involves determining the final direction a person is facing after a series of turns, starting from North. Each turn is relative to the current direction.

Solution: Step 1: Start with the initial direction: Facing North.

Step 2: Follow the turns: "A person walks 12 m north": The person is facing North.
"then turns right": From North, a right turn leads to East.
Current direction: East.
"and walks 5 m": The person walks 5 m East.
"He then turns right again": From East, a right turn leads to South.
Current direction: South.
"and walks 12 m": The person walks 12 m South.
"Finally, he turns left": From South, a left turn leads to East.
Current direction: East.
"and walks 7 m": The person walks 7 m East.

Step 3: Determine the final position relative to the starting point.
The person moved:
12 m North
5 m East
12 m South
7 m East

Calculate net North-South movement: 12 m North - 12 m South = 0 m. The person is at the same North-South level as the start.
Calculate net East-West movement: 5 m East + 7 m East = 12 m East.

The person's final position is 12 m East of the starting point.

Step 4: Determine the direction from the starting point.
Since the person is 12 m East of the starting point and 0 m North/South, the direction from the starting point is East.

Step 5: Check the options.
Option A is East.

Final Answer: East

Answer: (A)

Go Back to Question 21

Q22.

Solution

Concept: This problem requires calculating the final position and distance from the starting point after a series of movements in different directions.

Solution: Step 1: Analyze the movements:
Ravi walks 15 m south.
Then turns left and walks 20 m. From South, left is East. So, 20 m East.
He then turns left again and walks 15 m. From East, left is North. So, 15 m North.

Step 2: Calculate the net movement along the North-South axis.
15 m South + 15 m North = 0 m. The net North-South displacement is zero.

Step 3: Calculate the net movement along the East-West axis.
The movement was 20 m East. There was no West movement.
Net East-West = 20 m East.

Step 4: Determine the final position relative to the starting point.
The net displacement is 0 m in the North-South direction and 20 m in the East direction. So, Ravi is located 20 m East of the starting point.

Step 5: Check the options.
Option A is 20 m East.

Final Answer: 20 m East

Answer: (A)

Go Back to Question 22

Q23.

Solution

Concept: This question requires evaluating an assertion and a reason to determine their truthfulness and the explanatory relationship between them.

Solution: Step 1: Evaluate the Assertion (A): "Logical reasoning questions improve analytical ability."
Truthfulness: This is true. Engaging with logical reasoning questions exercises and develops analytical skills, such as problem-solving, critical thinking, and pattern recognition.

Step 2: Evaluate the Reason (R): "Regular practice helps identify hidden patterns and assumptions faster."
Truthfulness: This is also true. Practice in any skill, including logical reasoning, leads to better recognition of common patterns, logical structures, and underlying assumptions, thus increasing speed and accuracy.

Step 3: Determine if Reason (R) explains Assertion (A).
Explanation: Logical reasoning questions fundamentally rely on identifying patterns and understanding assumptions within problems. When regular practice enhances the ability to recognize these patterns and assumptions more quickly (R), it directly contributes to the improvement of analytical ability required for logical reasoning questions (A). Thus, R explains A.

Step 4: Choose the correct option.
Since both A and R are true, and R correctly explains A, option (A) is the correct choice.

Final Answer: Both A and R are True and R is the correct explanation of A

Answer: (A)

Go Back to Question 23

Q24.

Solution

Concept: This problem involves determining the rank of a person in a sequence based on given rank information and the position of other individuals.

Solution: Total students = 40

A is 12^{th} from the top.
B is 15^{th} from the bottom.

B's rank from the top:

$$40 - 15 + 1 = 26$$

So,
A is 12^{th} from the top and B is 26^{th} from the top.

C is exactly midway between A and B.

$$\text{C's rank} = \frac{12 + 26}{2} = 19$$

Hence, C is 19^{th} from the top.

Final Answer: 19th

Answer: (B)

Go Back to Question 24

Q25.

Solution

Concept: This problem involves arranging five people around a square table, with some at corners and one at the center, based on given constraints, and identifying the person at the center.

Solution: A square table has 4 corner seats and 1 centre seat.

Given:
A sits opposite B.
C sits immediate right of A.
D is not adjacent to B.

Place A and B at opposite corners.
If A is placed at the top corner, then B is at the opposite corner.
Since C sits immediate right of A, C is placed at the next corner clockwise.

Now D cannot sit adjacent to B, so D occupies the remaining corner seat.

Thus, the arrangement becomes:

$$\begin{array}{ccc} & A & \\ D & & C \\ & B & \end{array}$$

The only remaining person, E, sits at the centre.

Final Answer: E

Answer: (D)

Go Back to Question 25

Q26.

Solution

Concept: This question requires syllogistic reasoning to determine which conclusions necessarily follow from the given statements.

Solution: Step 1: Represent the statements logically.

1. All metals are elements.

$$\text{Metals} \subseteq \text{Elements}$$

2. Some elements are radioactive.

$$\text{Elements} \cap \text{Radioactive} \neq \emptyset$$

3. No radioactive substance is safe.

$$\text{Radioactive} \cap \text{Safe} = \emptyset$$

Step 2: Analyze Conclusion I — "Some elements are not safe."

Some elements are radioactive, and no radioactive substance is safe.
Hence, those radioactive elements are not safe.
Therefore, Conclusion I follows.

Step 3: Analyze Conclusion II — "Some scholars are not careless."

The terms "scholars" and "careless" are not mentioned in the statements.
So, no conclusion can be drawn about them.
Therefore, Conclusion II does not follow.

Step 4: Analyze Conclusion III — "No metal is safe."

We only know that some elements are radioactive and unsafe.
There is no information that all metals are radioactive.
Hence, we cannot conclude that no metal is safe.
Therefore, Conclusion III does not follow.

Final Assessment:

Only Conclusion I follows.

Final Answer: Only I follows

Answer: (B)

Go Back to Question 26

Q27.

Solution

Concept: This question involves a simple coding pattern where each letter in a word is replaced by the next letter in the alphabet.

Solution: Step 1: Analyze the given example: CAT is coded as DBU.
Let's look at the letter positions and the shift:
C (3) -> D (4) : +1
A (1) -> B (2) : +1
T (20) -> U (21) : +1
The pattern is a consistent shift of +1 for each letter.

Step 2: Apply this pattern to the word DOG.
D (4) -> Next letter is E (5)
O (15) -> Next letter is P (16)
G (7) -> Next letter is H (8)

Step 3: Combine the coded letters.
The coded word for DOG is EPH.

Step 4: Check the options.
Option A is EPH.

Final Answer: ITCRG

Answer: (A)

Go Back to Question 27

Q28.

Solution

Concept: This question asks to find the next term in a number series by identifying the pattern, which often involves powers of numbers.

Solution: Step 1: Analyze the given series: 1, 8, 27, 64, 125, ?
Step 2: Observe the numbers:
$1 = 1^3$
$8 = 2^3$
$27 = 3^3$
$64 = 4^3$
$125 = 5^3$
The series consists of the cubes of consecutive natural numbers.

Step 3: Calculate the next term.
The next term will be the cube of the next natural number, which is 6.
$6^3 = 6 \times 6 \times 6 = 36 \times 6 = 216$.

Step 4: Check the options.
Option C is 216.

Final Answer: 188

Answer: (C)

Go Back to Question 28

Q29.

Solution

Concept: This question assesses the ability to choose the most appropriate course of action to address a stated problem. A good course of action should be practical, effective, and address the core issue.

Solution: Step 1: Analyze the **Statement:** "A large number of road accidents occur due to overspeeding on highways." The problem is road accidents caused by speeding.

Step 2: Evaluate Course of Action I: "Speed-monitoring cameras should be installed."
Rationale: Installing speed-monitoring cameras acts as a deterrent by increasing the likelihood of being caught speeding. It also provides objective data for enforcing penalties. This directly addresses overspeeding. It is a practical and effective measure.

Step 3: Evaluate Course of Action II: "Strict penalties should be imposed for overspeeding."
Rationale: Imposing strict penalties (fines, license suspension, etc.) serves as a deterrent against overspeeding. This addresses the behavior directly by increasing the consequences of violating speed limits. This is also a practical and effective measure.

Step 4: Evaluate Course of Action III: "Highways should be closed during night hours."
Rationale: Closing highways during night hours is an extreme measure. It would severely disrupt transportation, logistics, and travel for many people who need to use highways at night. It does not address the root cause (overspeeding) but rather prevents all traffic, which is disproportionate and impractical. This is not a suitable course of action.

Step 5: Determine which courses of action follow.
Courses of Action I and II are practical, effective, and directly address the problem of overspeeding causing accidents. Course of Action III is impractical and overly restrictive.

Therefore, only Courses of Action I and II follow.

Final Answer: Only I and II follow

Answer: (A)

Go Back to Question 29

Q30.

Solution

Concept: This puzzle involves arranging five students (P, Q, R, S, T) in a row based on their scores and determining who scored the highest and second highest.

Solution: Step 1: Write the given conditions.

(1) P scored more than Q but less than R.

$$R > P > Q$$

(2) S scored less than T but more than Q.

$$T > S > Q$$

(3) R did not score the highest marks.

Step 2: Combine the relations.
From the above conditions:

$$R > P > Q$$

$$T > S > Q$$

Since R is not the highest scorer, someone must have scored more than R.
The only possible person is T. Therefore,

$$T > R$$

So, the combined order becomes:

$$T > R > P > Q$$

and

$$T > S > Q$$

Step 3: Find the second highest scorer.
T is the highest scorer.
Between R and S, no direct comparison is given.
Hence, the second highest scorer cannot be determined uniquely.

Final Answer: Cannot be determined

Answer: (D)

Go Back to Question 30

Answer Key

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