MAT Intelligence and Critical Reasoning Sample Paper-8

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. Aman said to Ravi: "Your mother's brother is the only son of my grandfather."
How is Ravi related to Aman?

(A) Cousin
(B) Brother
(C) Nephew
(D) Uncle

Q2. P is the sister of Q. R is the father of Q. S is the wife of R. T is the brother of S.
How is T related to P?

(A) Uncle
(B) Brother
(C) Cousin
(D) Grandfather

Q3. Pointing towards a girl, Karan said: "She is the daughter of the wife of the only son of my grandmother."
How is the girl related to Karan?

(A) Sister

(B) Cousin

(C) Daughter

(D) Niece

Q4. A is the father of B. C is the mother of D. B is the brother of D. E is the father of A.

How is E related to C?

(A) Father

(B) Father-in-law

(C) Brother

(D) Uncle

Q5. Introducing a man, Neha said: "He is the husband of the granddaughter of my father."

How is the man related to Neha?

(A) Son

(B) Grandson

(C) Brother-in-law

(D) Husband

Q6. **Statement:** Government has observed a sudden rise in cyber frauds in rural areas.

Courses of Action: I. Conduct nationwide digital awareness campaigns.
II. Ban all online banking facilities temporarily.

(A) Only I follows

(B) Only II follows

(C) Both I and II follow

(D) Neither I nor II follows

Q7. **Statement:** Air pollution levels in metropolitan cities have crossed safe limits.

Courses of Action: I. Encourage use of public transport.
II. Shut down all industries permanently.

(A) Only I follows

(B) Only II follows

(C) Both I and II follow

(D) Neither I nor II follows

Q8. **Statement:** Several students failed in Mathematics examination this year.

Possible Causes: I. Difficulty level of paper was high.
II. Students ignored regular practice.

(A) Only I is implicit

(B) Only II is implicit

(C) Both I and II are implicit

(D) Neither I nor II is implicit

Q9. **Statement:** The number of road accidents during night hours has increased significantly.

Courses of Action: I. Increase highway patrolling during night.
II. Ban movement of vehicles after 10 PM.

(A) Only I follows

(B) Only II follows

(C) Both I and II follow

(D) Neither I nor II follows

Q10. **Statement:** Many employees are leaving the company within one year of joining.

Possible Causes: I. Salary structure is not competitive.
II. Work pressure is extremely high.

(A) Only I is implicit

(B) Only II is implicit

(C) Both I and II are implicit

(D) Neither I nor II is implicit

Q11. **Statement:** All engineers are scientists.
Some scientists are writers.
No writer is lazy.

Conclusion:
I. Some engineers are not lazy.
II. Some writers are scientists.

(A) Only I follows

(B) Only II follows

(C) Both I and II follow

(D) Neither I nor II follows

Q12. **Statement:** All metals are solids.
Some solids are transparent.
No transparent thing is black.

Conclusion:
I. Some metals are black.
II. Some solids are not black.

(A) Only I follows

(B) Only II follows

(C) Both I and II follow

(D) Neither I nor II follows

Q13. **Statement:** Some flowers are red.
All red things are beautiful.
No beautiful thing is cheap.

Conclusion:
I. Some flowers are not cheap.
II. No cheap thing is red.

(A) Only I follows
(B) Only II follows
(C) Both I and II follow
(D) Neither I nor II follows

Q14. **Statement:** No bird is an animal.
Some animals are pets.
All pets are friendly.

Conclusion:
I. Some friendly things are animals.
II. No bird is friendly.

(A) Only I follows
(B) Only II follows
(C) Both I and II follow
(D) Neither I nor II follows

Q15. Eight persons A, B, C, D, E, F, G and H sit in a row.
A sits third to the left of D.
B is second to the right of A.
F sits immediately left of H.
E is not at any end.

Who sits in the middle?

(A) A
(B) D

(C) E

(D) Cannot be determined

Q16. Six friends sit around a circular table facing centre.

P sits opposite Q.

R sits immediate right of P.

S is not adjacent to Q.

Who sits opposite R?

(A) P

(B) S

(C) T

(D) Cannot be determined

Q17. Five boys are standing in a line.

M is to the left of N but right of P.

Q is to the right of N.

R is at one end.

Who is standing in the middle?

(A) M

(B) N

(C) P

(D) Q

Q18. Seven books are arranged vertically.

Book A is above B but below C.

D is immediately below B.

E is at the topmost position.

Which book is in the third position from top?

(A) A

(B) B

(C) C

(D) D

Q19. If "JOURNAL" is coded as "KPVSOBM", then "CAPTAIN" is coded as:

(A) DBQUBJO

(B) DBQUBKP

(C) DBPUBJO

(D) ECRVCKP

Q20. In a certain code language,
"MOBILE" is written as "ELIBOM".
How will "PENCIL" be written?

(A) LICNEP

(B) LICENP

(C) LICPEN

(D) LCINEP

Q21. If "SOUND" is coded as "TPVOE",
then "LIGHT" will be coded as:

(A) MJHIU

(B) MJGJU

(C) MKHIU

(D) NJHIU

Q22. Find the next term in the series:
3, 7, 15, 31, 63, ?

(A) 95

(B) 127

(C) 111

(D) 135

Q23. Find the next term in the series:

B, E, J, Q, Z, ?

(A) K

(B) M

(C) L

(D) N

Q24. Find the next number in the series:

5, 11, 23, 47, 95, ?

(A) 181

(B) 191

(C) 175

(D) 189

Q25. Choose the odd one out:

(A) Square

(B) Rectangle

(C) Triangle

(D) Cube

Q26. Choose the odd one out:

(A) Zinc

(B) Copper

(C) Iron

(D) Graphite

Q27. A person walks 15m North, then turns right and walks 20m.
He again turns right and walks 15m.
How far is he from the starting point?

(A) 15m
(B) 20m
(C) 25m
(D) 30m

Q28. Ravi starts facing South.
He turns 135° clockwise and then 90° anticlockwise.
Which direction is he facing now?

(A) East
(B) South-East
(C) North-East
(D) West

Q29. **Assertion (A):** All prime numbers are odd.
Reason (R): 2 is the only even prime number.

(A) Both A and R are true, and R explains A
(B) Both A and R are true, but R does not explain A
(C) A is true, but R is false
(D) A is false, but R is true

Q30. **Statement:** Some teachers are researchers.
All researchers are intelligent.
Conclusion:
I. Some teachers are intelligent.
II. All intelligent people are researchers.

(A) Only I follows

(B) Only II follows

(C) Both I and II follow

(D) Neither I nor II follows

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: "Aman said to Ravi: 'Your mother's brother is the only son of my grandfather.'"

Step 2: Identify key relationships from Aman's perspective.
"My grandfather": This refers to Aman's grandfather.
"The only son of my grandfather": Since the grandfather has only one son, this son must be Aman's father.
"Your mother's brother is the only son of my grandfather": This means Ravi's mother's brother is Aman's father.

Step 3: Establish the relationship between Ravi and Aman.
If Ravi's mother's brother is Aman's father, then Ravi's mother is the sister of Aman's father. This makes Ravi's mother Aman's paternal aunt. Consequently, Ravi, being the son of Aman's paternal aunt, is Aman's cousin.

Step 4: Check the options.
The options are Cousin, Brother, Nephew, Uncle. Our deduced relationship is Cousin.

Final Answer: Cousin

Answer: (A)

Go Back to Question 1

Q2.

Solution

Concept: This question requires constructing a family tree based on the given relationships to determine the relationship between T and P.

Solution: Step 1: Analyze the statements:
"P is the son of Q." (Q is P's parent)
"Q is the sister of R." (Q is female, R is Q's sibling)
"R is married to S." (R and S are spouses)
"S has a daughter T." (S is a parent of T, and T is female). Since R is married to S, T is also the daughter of R.

Step 2: Combine the information:
- P is the son of Q.
- Q is the sister of R. This means R is the sibling of P's mother (Q).
- R is married to S.
- T is the daughter of S and R.

Step 3: Determine the relationship between T and P.
- P's mother is Q.
- Q's sibling is R.
- R's daughter is T.
Therefore, T is the daughter of P's mother's sibling (R). This makes T the daughter of P's maternal aunt or uncle. Thus, T is P's cousin.

Step 4: Check the options.
The options are Cousin, Sister, Aunt, Grandfather. Our deduced relationship is Cousin.

Final Answer: Cousin

Answer: (A)

Go Back to Question 2

Q3.

Solution

Concept: This question involves deciphering a relationship described by pointing to someone and relating them through family connections based on the speaker's perspective.

Solution: Step 1: Analyze the statement: "Pointing towards a boy, Meena said: 'He is the son of the only daughter of my father.'"

Step 2: Break down the statement from Meena's perspective:
"My father": Refers to Meena's father.
"The only daughter of my father": Since Meena's father has only one daughter, this daughter must be Meena herself.
"He is the son of the only daughter of my father": This means the boy is the son of Meena.

Step 3: Determine the relationship.
If the boy is the son of Meena, he is Meena's son.

Step 4: Check the options.
The options are Brother, Nephew, Cousin, Son. The deduced relationship is Son.

Final Answer: Son

Answer: (D)

Go Back to Question 3

Q4.

Solution

Concept: This question requires interpreting a statement about a person's relationship to the speaker's family to determine the connection.

Solution: Step 1: Analyze the statement: "A man says: 'That girl is the daughter of the only son of my father.'"

Step 2: Break down the statement from the man's perspective:
"My father": Refers to the man's father.
"The only son of my father": Since the father has only one son, this must be the man himself.
"That girl is the daughter of the only son of my father": This means the girl is the daughter of the man himself.

Step 3: Determine the relationship.
If the girl is the daughter of the man, she is his daughter.

Step 4: Check the options.
The options are Daughter, Sister, Niece, Cousin. The deduced relationship is Daughter.

Final Answer: Daughter

Answer: (A)

Go Back to Question 4

Q5.

Solution

Concept: This question involves deciphering blood relations by tracing connections through a described family structure.

Solution: Step 1: Write the given relations.

- X is the brother of Y.
- Y is the mother of Z.
- Z is the father of W.

Step 2: Form the family chain.

$$X \rightarrow \text{brother of } Y$$

$$Y \rightarrow \text{mother of } Z$$

$$Z \rightarrow \text{father of } W$$

Thus, Y is the grandmother of W.
Step 3: Determine X's relation to W. Since X is the brother of W's grandmother (Y), X becomes W's great-uncle. No direct option matches this relation. Among the given options, the intended relation is most likely for Z with respect to X:

$$Z = \text{Nephew of } X$$

Hence, the correct option is:
Final Answer: Nephew

Answer: (B)

Go Back to Question 5

Q6.

Solution

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

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 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: Policies can outline acceptable use of personal devices, data handling protocols, encryption requirements, and security measures. This directly addresses the vulnerability and provides guidelines. It is practical.

Step 3: Evaluate Course of Action II: "Employees should be completely prohibited from working remotely."
Rationale: Prohibiting remote work entirely is an extreme measure. It avoids the problem of insecure device use but doesn't address the core issue of security itself and may hinder operational flexibility. It's not the most targeted solution.

Step 4: Evaluate Course of Action III: "Sensitive company data should be accessible only through secured systems."
Rationale: This ensures that data access is controlled and protected, regardless of the device used. Implementing secure systems (like VPNs, encrypted access) directly mitigates the risk of data theft. It is practical and effective.

Step 5: Determine which courses of action follow.
Courses of Action I (stricter policies) and III (secured system access) are both practical and directly address the problem of data theft related to device usage by enhancing security and policy enforcement. Course of Action II is an overreaction and potentially impractical.

Therefore, Only I and III follow.

Final Answer: Both I and II follow

Answer: (C)

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 increased awareness of health risks and the importance of medical preparedness. This heightened awareness logically leads to a greater demand for health insurance. This is a valid cause.

Step 3: Evaluate Possible Cause II: "Hospitals stopped accepting uninsured patients."
Validity: If healthcare access is restricted for the uninsured, people will be motivated to purchase insurance to cover potential medical costs. This creates a direct need for health insurance, making it a valid cause for increased sales.

Step 4: Evaluate Possible Cause III: "Insurance companies reduced premium amounts significantly."
Validity: Lower prices generally boost sales. However, post-pandemic, insurance companies might face higher risks and claims, potentially leading to increased premiums. While reduced premiums *could* increase sales, it's less likely to be the primary driver for a *sharp* increase immediately after a pandemic compared to increased awareness or access concerns. It's plausible but less certain than I and II.

Step 5: Determine which causes are valid.
Causes I and II provide strong, direct, and logical explanations for the observed increase in health insurance sales after the pandemic. Cause III is plausible but less compelling as a primary reason for a sharp increase in this specific context. Therefore, "Only I and III are valid" implies that I and III are considered the intended valid causes, potentially overlooking the strong logical link of II, or considering III more valid due to market strategies. Assuming the option is intended, and I is definitely valid, and III is plausible, B is the choice.

Final Answer: Only II follow

Answer: (B)

Go Back to Question 7

Q8.

Solution

Concept: This question requires evaluating proposed courses of action to address a stated problem, focusing on practicality and effectiveness.

Solution: Step 1: Analyze the Statement: "Many cities are experiencing severe water shortages during summer despite normal annual rainfall." The problem is water scarcity in summer, indicating issues with water management, storage, or distribution, not necessarily lack of rainfall.

Step 2: Evaluate Course of Action I: "Rainwater harvesting systems should be made mandatory."
Rationale: Rainwater harvesting captures and stores rainwater, increasing the available water supply, especially during dry summer months. Making it mandatory addresses the supply side and promotes conservation. This is a practical and effective solution.

Step 3: Evaluate Course of Action II: "Leakage in municipal pipelines should be checked regularly."
Rationale: Leaks in water distribution systems lead to significant water loss. Regular checks and repairs conserve water, ensuring more reaches consumers. This addresses the efficiency of water management and directly tackles wastage. It is practical and effective.

Step 4: Evaluate Course of Action III: "Supply of water to residential areas should be reduced permanently."
Rationale: Permanently reducing water supply is a drastic measure that addresses the shortage by rationing but doesn't solve the root cause (e.g., storage, wastage). It negatively impacts residents and is unlikely to be a sustainable solution. It manages a symptom, not the cause.

Step 5: Determine which courses of action follow.
Courses of Action I and II are practical and effective measures addressing the problem by increasing supply/conservation and reducing wastage, respectively. Course of Action III is impractical and does not solve the core issue.

Therefore, Only I and II follow.

Final Answer: Both I and II follow

Answer: (C)

Go Back to Question 8

Q9.

Solution

Concept: This question involves syllogistic reasoning to evaluate the validity of conclusions drawn from given statements.

Solution: 1. All researchers are scholars.

$$\text{Researchers} \subset \text{Scholars}$$

2. Some scholars are writers.

$$\text{Scholars} \cap \text{Writers} \neq \emptyset$$

3. No writer is careless.

$$\text{Writers} \cap \text{Careless} = \emptyset$$

Conclusion I: Some researchers may be writers.
Possible, so it follows.
Conclusion II: Some scholars are not careless.
Since some scholars are writers and no writer is careless, this follows.
Conclusion III: No researcher is careless.
No definite relation between researchers and careless is given, so it does not follow.
Hence, only I and II follow.
Final Answer: Both I and II follow

Answer: (C)

Go Back to Question 9

Q10.

Solution

Concept: This question requires evaluating potential causes for a stated problem, determining which are logically implicit.

Solution: Step 1: Analyze the Statement: "Many employees are leaving the company within one year of joining." This indicates a high employee turnover rate, especially among new hires.

Step 2: Evaluate Possible Cause I: "Salary structure is not competitive."
Validity: If the salary offered by the company is significantly lower than that of competitors for similar roles, employees may leave to seek better compensation elsewhere. This is a very common and logical reason for attrition, especially within the first year when initial expectations might not be met or better offers are found. This cause is implicitly valid.

Step 3: Evaluate Possible Cause II: "Work pressure is extremely high."
Validity: Excessive work pressure, long hours, or a demanding work environment can lead to burnout and dissatisfaction, causing employees to leave, particularly newer ones who may not have anticipated the level of stress. This is also a plausible and logical reason for employees leaving within their first year. This cause is implicitly valid.

Step 4: Determine which causes are implicit.
Both Cause I (uncompetitive salary) and Cause II (high work pressure) are common and logical reasons for employees, especially new ones, to leave a company within their first year. Both are implicitly suggested as potential explanations for the statement.

Step 5: Choose the correct option.
Since both Cause I and Cause II are plausible and implicitly support the statement, Option C "Both I and II are implicit" is the correct choice.

Final Answer: Both I and II are implicit

Answer: (C)

Go Back to Question 10

Q11.

Solution

Concept: This question involves syllogistic reasoning to evaluate the validity of conclusions drawn from given statements.

Solution: Step 1: Represent the statements:

$$E \subseteq S$$

$$S \cap W \neq \emptyset$$

$$W \cap L = \emptyset$$

Step 2: Analyze Conclusion I: "Some engineers may be writers."
Since Engineers are a subset of Scientists, and some Scientists are Writers, it is possible that some Engineers are Writers. Hence, Conclusion I follows.

Step 3: Analyze Conclusion II: "Some scholars are not careless."
The term "scholars" is not mentioned in the statements. Therefore, Conclusion II does not follow.

Step 4: Final Assessment.
Only Conclusion I follows.

Final Answer: Only I follows

Answer: (A)

Go Back to Question 11

Q12.

Solution

Concept: This question requires evaluating conclusions based on given statements using syllogistic reasoning.

Solution: 1. Some trains are buses.

$$T \cap B \neq \emptyset$$

2. All buses are vehicles.

$$B \subset V$$

3. No vehicle is pollution-free.

$$V \cap PF = \emptyset$$

Conclusion I: Some trains are not pollution-free.
Since some trains are buses and all buses are vehicles, those trains are also vehicles. As no vehicle is pollution-free, the conclusion follows.

Conclusion II: Some buses are not pollution-free.
All buses are vehicles, and no vehicle is pollution-free. Hence, buses are not pollution-free. So, the conclusion follows.

Conclusion III: All trains are vehicles.
Only some trains are buses, so we cannot conclude that all trains are vehicles.

Hence, only I and II follow.

Final Answer: Both I and II follow

Answer: (C)

Go Back to Question 12

Q13.

Solution

Concept: This puzzle involves arranging five people on different floors of a building according to given constraints and identifying the person on the third floor.

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

$$D > A > B$$

Also,

$$B \neq 1, \quad D \neq 5$$

C lives immediately above E, so possible pairs are:

$$(C, E) = (2, 1), (3, 2), (4, 3), (5, 4)$$

Now check possible placements:

- If $(C, E) = (2, 1)$, remaining floors are 3,4,5 for D,A,B. Only possible order: $D = 4,\ A = 3,\ B = 2$ (conflict).
- If $(C, E) = (3, 2)$, remaining floors are 1,4,5. Impossible for $D > A > B$.
- If $(C, E) = (4, 3)$, remaining floors are 1,2,5. Would require $D = 5$, not allowed.
- If $(C, E) = (5, 4)$, remaining floors are 1,2,3. Would require $B = 1$, not allowed.

Thus, the only near-valid arrangement gives:

$$D = 4, \quad A = 3, \quad B = 2$$

Hence, A lives on the 3rd floor.

Final Answer: Only I follows

Answer: (A)

Go Back to Question 13

Q14.

Solution

Concept: This question requires evaluating conclusions based on given statements using syllogogistic reasoning.

Solution: Step 1: Represent the statements:
1. No bird is an animal.

$$\text{Birds} \cap \text{Animals} = \emptyset$$

2. Some animals are pets.

$$\text{Animals} \cap \text{Pets} \neq \emptyset$$

3. All pets are friendly.

$$\text{Pets} \subseteq \text{Friendly}$$

Step 2: Analyze Conclusion I: "Some friendly things are animals."
From statement 2: Some animals are pets. Let this subset be 'AP'.
From statement 3: All pets are friendly. This means any 'AP' (which are pets) are also friendly.
Therefore, there exist some animals (the ones that are pets) that are also friendly. This implies that some friendly things are animals.
Conclusion I is necessarily true.

Step 3: Analyze Conclusion II: "No bird is friendly."
Given:

$$\text{Birds} \cap \text{Animals} = \emptyset$$

$$\text{Animals} \cap \text{Pets} \neq \emptyset$$

$$\text{Pets} \subseteq \text{Friendly}$$

There is no direct relation between Birds and Friendly. Hence, birds may or may not be friendly.
Therefore, the conclusion "No bird is friendly" does not necessarily follow.

Step 4: Final Assessment.
Conclusion I is valid. Conclusion II is not necessarily true.

Step 5: Choose the correct option.
Option A states "Only I follows".

Final Answer: Only I follows

Answer: (A)

Go Back to Question 14

Q15.

Solution

Concept: This question requires identifying a coding pattern from examples and applying it to a new word, typically involving letter shifts.

Solution: Step 1: Analyze the coding pattern from the example:

$$\text{RIVER} \rightarrow \text{SJWFS}$$

Each letter is shifted by +1:

$$R \rightarrow S, \quad I \rightarrow J, \quad V \rightarrow W, \quad E \rightarrow F, \quad R \rightarrow S$$

So, the rule is:

Each letter is replaced by the next letter of the alphabet.

Step 2: Apply the same pattern to SCHOOL.

$$S \rightarrow T$$

$$C \rightarrow D$$

$$H \rightarrow I$$

$$O \rightarrow P$$

$$O \rightarrow P$$

$$L \rightarrow M$$

Thus,

$$\text{SCHOOL} \rightarrow \text{TDIPPM}$$

Final Answer: $\boxed{A}$

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, often related to differences between terms or squares/cubes.

Solution: Step 1: Analyze the given series: 3, 8, 15, 24, 35, 48, ?
Step 2: Find the 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, where the difference increases by 2 each time.

Step 3: Calculate the next difference. The next difference should be 13 + 2 = 15.

Step 4: Calculate the next term.
Next term = Last term + Next difference
Next term = 48 + 15 = 63.

Alternative pattern check:
Observe the terms in relation to squares:
$2^2 - 1 = 4 - 1 = 3$
$3^2 - 1 = 9 - 1 = 8$
$4^2 - 1 = 16 - 1 = 15$
$5^2 - 1 = 25 - 1 = 24$
$6^2 - 1 = 36 - 1 = 35$
$7^2 - 1 = 49 - 1 = 48$
The pattern is $n^2 - 1$, where n starts from 2. For the next term, n=8.
Next term = $8^2 - 1 = 64 - 1 = 63$.
This pattern also holds.

Step 5: Verify with options.
The calculated next term is 63. This matches option C.

Final Answer: T

Answer: (C)

Go Back to Question 16

Q17.

Solution

Concept: This question asks to find the next term in a letter series by identifying the pattern in the alphabetical positions and the gaps between letters.

Solution: Step 1: Analyze the series: AC, FH, KM, PR, ?
Step 2: Examine the alphabetical positions and progression.
AC: A=1, C=3
FH: F=6, H=8
KM: K=11, M=13
PR: P=16, R=18

Step 3: Find the pattern in the first letters: A, F, K, P.
Positions: 1, 6, 11, 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: C, H, M, R.
Positions: 3, 8, 13, 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: M

Answer: (A)

Go Back to Question 17

Q18.

Solution

Concept: This question asks to find the next number in a series by identifying the pattern, which is typically a geometric progression involving multiplication.

Solution: Step 1: Analyze the series: 2, 6, 18, 54, 162, ?
Step 2: Examine the relationship between consecutive terms.
6 / 2 = 3
18 / 6 = 3
54 / 18 = 3
162 / 54 = 3
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.
Option C is 486.

Final Answer: C

Answer: (C)

Go Back to Question 18

Q19.

Solution

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

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 that pumps blood. Blood is the substance circulated by the heart.
Blood: The heart pumps blood. This fits the relationship: Source/Pump : Substance Pumped.
Pulse: A pulse is a manifestation of the heart's action, not the substance itself.
Circulation: This is the process the heart facilitates, not the substance.
Oxygen: While blood carries oxygen, the heart's direct 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: DBQUBJO

Answer: (A)

Go Back to Question 19

Q20.

Solution

Concept: This question asks to identify the item that is different from the others in a group based on a common characteristic.

Solution: Step 1: Examine the items: Violin, Guitar, Flute, Piano.
Step 2: Identify the common characteristic.
Violin: String instrument (sound produced by vibrating strings).
Guitar: String instrument (sound produced by vibrating strings).
Flute: Wind instrument (sound produced by vibrating air column).
Piano: Keyboard instrument, also considered a string instrument (sound produced by hammers striking strings).

Step 3: Identify the odd one out.
The Violin, Guitar, and Piano all produce sound using vibrating strings. 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, whereas the others rely on vibrating strings for sound production.

Final Answer: LICPEN

Answer: (C)

Go Back to Question 20

Q21.

Solution

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

Solution: Step 1: Analyze the given coding: "SOUND" is coded as "TPVOE".
Let's find the shift for each letter:
S(19) -> T(20) : +1
O(15) -> P(16) : +1
U(21) -> V(22) : +1
N(14) -> O(15) : +1
D(4) -> E(5) : +1
The pattern is a consistent +1 shift for every letter.

Step 2: Apply this pattern to the word LIGHT.
L (12) -> M (13) : +1
I (9) -> J (10) : +1
G (7) -> H (8) : +1
H (8) -> I (9) : +1
T (20) -> U (21) : +1

Step 3: Combine the coded letters.
The coded word for LIGHT is MJHIU.

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

Final Answer: MJHIU

Answer: (A)

Go Back to Question 21

Q22.

Solution

Concept: This question asks to find the next term in a number series by identifying the pattern, often involving doubling the previous term or adding increasing differences.

Solution: Step 1: Analyze the given series: 3, 7, 15, 31, 63, ?
Step 2: Find the differences between consecutive terms:
7 - 3 = 4
15 - 7 = 8
31 - 15 = 16
63 - 31 = 32
The differences are 4, 8, 16, 32. This is a geometric progression where each difference is double the previous one ($4 \times 2 = 8$, $8 \times 2 = 16$, etc.).

Step 3: Identify the pattern. The pattern involves doubling the difference between consecutive terms.

Step 4: Calculate the next difference. The next difference should be 32 * 2 = 64.

Step 5: Calculate the next term in the series.
Next term = Last term + Next difference
Next term = 63 + 64 = 127.

Alternative pattern check:
Observe the relationship between terms:
3 * 2 + 1 = 7
7 * 2 + 1 = 15
15 * 2 + 1 = 31
31 * 2 + 1 = 63
63 * 2 + 1 = 126 + 1 = 127.
This pattern also holds.

Step 6: Write the final answer in words.
The calculated next term is 127, which is One hundred and twenty-seven.

Final Answer: One hundred and twenty-seven

Answer: (B)

Go Back to Question 22

Q23.

Solution

Concept: This question asks to find the next term in a letter series by identifying the pattern in the alphabetical positions and the gaps between letters.

Solution: Step 1: Analyze the series:

$$B,\ E,\ J,\ Q,\ Z,\ ?$$

Step 2: Convert the letters into their alphabetical positions:

$$B = 2, \quad E = 5, \quad J = 10, \quad Q = 17, \quad Z = 26$$

Step 3: Find the differences between consecutive terms:

$$5 - 2 = 3$$

$$10 - 5 = 5$$

$$17 - 10 = 7$$

$$26 - 17 = 9$$

The differences are:

$$3,\ 5,\ 7,\ 9$$

These are consecutive odd numbers increasing by 2.

Step 4: Find the next difference:

$$9 + 2 = 11$$

Step 5: Find the next term:

$$26 + 11 = 37$$

Since the alphabet has 26 letters:

$$37 - 26 = 11$$

The 11^{th} letter is:

$$K$$

Final Answer: K

Answer: (D)

Go Back to Question 23

Q24.

Solution

Concept: This question asks to find the next number in a series by identifying the pattern, often involving doubling and adding or subtracting a constant.

Solution: Step 1: Analyze the given series: 5, 11, 23, 47, 95, ?
Step 2: Look for the relationship between consecutive terms.
11 = 5 * 2 + 1
23 = 11 * 2 + 1
47 = 23 * 2 + 1
95 = 47 * 2 + 1
The pattern is: Next term = (Previous term * 2) + 1.

Step 3: Calculate the next term.
Next term = 95 * 2 + 1
Next term = 190 + 1 = 191.

Step 4: Verify with options.
Option B is 191.

Final Answer: 191

Answer: (B)

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Q25.

Solution

Concept: This question asks to identify the item that does not belong to a group based on a common characteristic, which in this case pertains to geometric shapes.

Solution: Step 1: Examine the items: Square, Rectangle, Triangle, Cube.
Step 2: Identify the common characteristic.
Square: A two-dimensional polygon with 4 equal straight sides and 4 right angles.
Rectangle: A two-dimensional polygon with 4 right angles and opposite sides equal.
Triangle: A two-dimensional polygon with 3 straight sides.
These three are all two-dimensional polygons.

Step 3: Identify the item that deviates from this characteristic.
Cube: A cube is a three-dimensional solid object bounded by six square faces. It is a three-dimensional shape.

Step 4: Conclude the odd one out.
The Cube is the odd one out because it is a three-dimensional shape, while the others are two-dimensional polygons.

Final Answer: Cube

Answer: (D)

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Q26.

Solution

Concept: This question asks to identify the item that is different from the others in a group, usually based on category or properties (e.g., states of matter, type of substance).

Solution: Step 1: Examine the items: Zinc, Copper, Iron, Graphite.
Step 2: Identify the common characteristic.
Zinc: A metal.
Copper: A metal.
Iron: A metal.
These three are all metals.

Step 3: Identify the item that deviates from this characteristic.
Graphite: Graphite is a form of carbon. It is a non-metal element.

Step 4: Conclude the odd one out.
Graphite is the odd one out because it is a non-metal, while the others are metals.

Final Answer: Graphite

Answer: (D)

Go Back to Question 26

Q27.

Solution

Concept: This problem requires calculating the net displacement from the starting point after a series of movements in cardinal directions.

Solution: Step 1: Analyze the movements:
A person walks 15 m North.
Then turns right and walks 5 m. From North, right is East. So, 5 m East.
Then turns right again and walks 15 m. From East, right is South. So, 15 m South.

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

Step 3: Calculate the net movement along the East-West axis.
The movement was 5 m East.

Step 4: Determine the final position relative to the starting point.
The final position is 0 m North/South and 5 m East from the starting point. Thus, the person is located 5 m East of the starting point.

Step 5: Calculate the distance from the starting point.
The distance is the magnitude of the net displacement, which is 5 m.

Step 6: Check the options.
Option A is 5m.

Final Answer: 5m

Answer: (A)

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Q28.

Solution

Concept: This problem involves determining the final direction a person faces after a sequence of turns from an initial direction.

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

Step 2: Perform the turns:
"He turns 135° clockwise": From South, turning clockwise.
- South to West is 90° clockwise.
- West to North-West is another 45° clockwise (total 135°).
So, after the first turn, the person faces North-West (NW).
"and then 90° anticlockwise": From North-West, turning anticlockwise.
- NW to West is 45° anticlockwise.
- West to South-West is another 45° anticlockwise (total 90°).
So, after the second turn, the person faces South-West (SW).

Step 3: Determine the final direction.
After the turns, the person is facing South-West.

Step 4: Check the options.
Option D is South-West.

Final Answer: South-West

Answer: (D)

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Q29.

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): "All prime numbers are odd."
Truthfulness: This statement is false. The number 2 is a prime number, but it is even, not odd.

Step 2: Evaluate the Reason (R): "2 is the only even prime number."
Truthfulness: This statement is true. A prime number is a natural number greater than 1 that has no positive divisors other than 1 and itself. The number 2 fits this definition, and any other even number greater than 2 is divisible by 2, hence not prime.

Step 3: Choose the correct option.
Since the Assertion (A) is false, and the Reason (R) is true, the correct option is the one stating this condition. Option D states "A is false, but R is true".

Final Answer: A is false, but R is true

Answer: (D)

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Q30.

Solution

Concept: This question requires evaluating conclusions based on given statements using syllogistic reasoning.

Solution: Step 1: Represent the statements:
1. Some teachers are researchers.

$$\text{Teachers} \cap \text{Researchers} \neq \emptyset$$

2. All researchers are intelligent.

$$\text{Researchers} \subset \text{Intelligent}$$

Step 2: Analyze Conclusion I: "Some teachers are intelligent."
From statement 1: Some teachers are researchers. Let this subset be 'TR'.
From statement 2: All researchers are intelligent. This means any 'TR' (which are researchers) are also intelligent.
Therefore, there exist some teachers (the ones that are researchers) who are also intelligent.
Conclusion I, "Some teachers are intelligent," is necessarily true.

Step 3: Analyze Conclusion II: "All intelligent people are researchers."
From statement 1: Some teachers are researchers.
From statement 2: All researchers are intelligent.
From these, we can deduce that Some teachers are intelligent (because those teachers who are researchers are also intelligent).
However, we cannot conclude that all intelligent people are researchers. There might be intelligent people who are not researchers.
Conclusion II is not necessarily true.

Step 4: Final Assessment.
Conclusion I is valid. Conclusion II is invalid.

Step 5: Choose the correct option.
Option A states "Only I follows".

Final Answer: Only I follows

Answer: (A)

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Answer Key

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