MAT Intelligence and Critical Reasoning Sample Paper-6

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. A is the father of B.
B is the sister of C.
D is the mother of C.
E is the father of D.
How is E related to B?

(A) Grandfather

(B) Father

(C) Uncle

(D) Brother

Q2. P is the son of Q.
Q is the sister of R.
R is married to S.
S has a daughter T.
How is T related to P?

(A) Cousin

(B) Sister

(C) Aunt

(D) Niece

Q3. Pointing to a man, Riya says:
"He is the son of my mother's only daughter."
How is the man related to Riya?

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

Q4. A man says:
"That girl is the daughter of the only son of my father."
How is the girl related to the man?

(A) Daughter
(B) Sister
(C) Niece
(D) Cousin

Q5. X is the brother of Y.
Y is the mother of Z.
Z is the father of W.
How is W related to X?

(A) Son
(B) Nephew
(C) Grandson
(D) Cousin

Q6. **Statement:** All pens are books.
Some books are pencils.
No pencil is eraser.

Conclusion: I. Some pens are not erasers.
II. No book is an eraser.

(A) Only I and III follow

(B) Only II follow

(C) Both I and II follow

(D) Neither I nor II follow

Q7. **Statement:** All fruits are sweet.
Some sweets are chocolates.
No chocolate is bitter.

Conclusion: I. Some fruits may be chocolates.
II. No chocolate is sweet.

(A) Only I follow

(B) I, II and III follow

(C) Only I and II follow

(D) Neither I nor II follow

Q8. **Statement:** All A are B.
No B is C.
Some C are D.

Conclusion: I. Some A are not C.
II. Some D are not B.

(A) Only I follow

(B) Only II follow

(C) Both I and II follow

(D) Neither I nor II follows

Q9. **Statement:** All machines require energy.
Some energy sources are renewable.

Conclusion: I. Some renewable sources provide energy.
II. All machines use renewable energy.

(A) Only I follow

(B) Only II follow

(C) Both I and II follow

(D) Neither I nor II follows

Q10. **Statement:** No students are athletes.
Some athletes are musicians.

Conclusion: I. Some musicians are athletes.
II. No musician is a student.

(A) Only I follows

(B) Only II follows

(C) Both I and II follow

(D) Neither I nor II follows

Q11. P, Q, R, S, T, U are arranged in a line. P is left of Q. R is right of S. T is between Q and R. U is at one end. Find the correct order.

(A) U P Q T R S

(B) P Q T R S U

(C) U S R T Q P

(D) Cannot be determined

Q12. Six persons A–F sit in a circle. A is opposite C. B is between A and D. E is not adjacent to F. Who sits opposite B?

(A) D

(B) F

(C) E

(D) Cannot be determined

Q13. Five students sit in a row. X is not at any end. Y is left of Z but right of X. W is at the right end. Who is in the middle?

(A) X

(B) Y

(C) Z

(D) W

Q14. A, B, C, D are sitting in a row. A is not next to B. C is between A and D. B is at one end. Find the arrangement.

(A) B A C D

(B) D C A B

(C) B D C A

(D) Cannot be determined

Q15. Four people sit in a square facing center. A is opposite B. C is to the left of A. Who is opposite C?

(A) B

(B) A

(C) D

(D) Cannot be determined

Q16. If TABLE is coded as UCBDM, then CHAIR is coded as:

(A) DIBJS

(B) DIBJS

(C) DJBIS

(D) DICJS

Q17. If FLOWER is coded as GNPXFS, then GARDEN is coded as:

(A) HBSEFO

(B) HBSEFN

(C) HBRDFN

(D) HBSDFO

Q18. If CRYPTO is coded as DSZQUP, then BLOCK is coded as:

(A) CMPLD

(B) CMPLD

(C) CNPMD

(D) CMPLF

Q19. Find the next term:
3, 8, 15, 24, 35, ?

(A) 48

(B) 46

(C) 50

(D) 52

Q20. Find the next term:
A, C, F, J, O, ?

(A) T

(B) U

(C) V

(D) W

Q21. Find the next number:
2, 6, 12, 20, 30, ?

(A) 40

(B) 42

(C) 44

(D) 46

Q22. Find the odd one out:
16, 25, 36, 49

(A) 16

(B) 25

(C) 36

(D) 49

Q23. Find the odd one out:
Triangle, Square, Circle, Pentagon

(A) Triangle

(B) Square

(C) Circle

(D) Pentagon

Q24. Find the odd one out:
Mercury, Venus, Earth, Pluto

(A) Mercury

(B) Venus

(C) Earth

(D) Pluto

Q25. North-East becomes South-West after 180° rotation. North becomes:

(A) South

(B) East

(C) West

(D) North-East

Q26. A walks 10m North, 6m East, then 10m South. Distance from starting point is:

(A) 6m

(B) 10m

(C) 8m

(D) 12m

Q27. A is facing South-West and turns 90° clockwise. New direction is:

(A) North-West

(B) North-East

(C) South-East

(D) North

Q28. **Statement:** Some cars are bikes. Some bikes are trucks.
Conclusion: Some cars are trucks.

(A) True

(B) False

(C) Either

(D) Cannot be determined

Q29. **Statement:** All metals conduct electricity.
Copper is a metal.
Conclusion: Copper conducts electricity.

(A) True

(B) False

(C) Either

(D) Cannot be determined

Q30. Assertion: All squares are rectangles.
Reason: All rectangles have equal sides.

(A) Both true, R explains A

(B) Both true, R not explain A

(C) A true, R false

(D) A false, R true

Detailed Solutions

Q1.

Solution

Concept: This question is about blood relations. To solve it, we need to establish the family connections based on the given statements.

Solution: Step 1: Analyze the statements:
"A is the father of B." (A -> Father, B -> Child)
"B is the sister of C." (B -> Sister, C -> Sibling of B. Since B is female, C could be male or female).
"D is the mother of C." (D -> Mother, C -> Child of D. Since B is C's sister, D is also B's mother).
"E is the father of D." (E -> Father, D -> Child of E).

Step 2: Combine the information to form a family structure.
- D is the mother of C.
- B is the sister of C. This means D is also the mother of B.
- E is the father of D. This means E is the father of B's mother.

Step 3: Determine the relationship between E and B.
E is the father of B's mother (D). Therefore, E is B's maternal grandfather.

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

Final Answer: Grandfather

Answer: (A)

Go Back to Question 1

Q2.

Solution

Concept: This question involves blood relations, requiring careful breakdown of the statements to establish the family connections.

Solution: Step 1: Analyze the statements:
"P is the son of Q." (Q -> Parent, P -> Son)
"Q is the sister of R." (Q -> Sister, R -> Sibling of Q. Q is female).
"R is married to S." (R <-> S. R is spouse of S).
"S has a daughter T." (S -> Parent, T -> Daughter of S).

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.
- S has a daughter T. Since R is married to S, T is the daughter of both R and S.

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. This makes T the daughter of P's maternal aunt (or uncle, if R was male, but Q is female, so R is Q's sibling). Since Q is female, R is P's maternal aunt/uncle. T is the daughter of P's maternal aunt/uncle. Thus, T is P's cousin.

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

Final Answer: Cousin

Answer: (A)

Go Back to Question 2

Q3.

Solution

Concept: This problem requires decoding coded relationships and finding the expression that matches the target relationship: "P is the maternal uncle of Q". A maternal uncle is the brother of one's mother.

Solution: Step 1: Decode the symbols.

$$A + B \Rightarrow A \text{ is the mother of } B$$

$$A - B \Rightarrow A \text{ is the brother of } B$$

Step 2: Understand the relation. "P is the maternal uncle of Q" means:

$$P \text{ is the brother of Q's mother}$$

So, if R is Q's mother:

$$P - R \quad \text{and} \quad R + Q$$

This gives:

$$P - R + Q$$

Step 3: Check the options. Option A:

$$P - R + Q$$

$$P - R \Rightarrow P \text{ is brother of } R$$

$$R + Q \Rightarrow R \text{ is mother of } Q$$

Hence, P is the maternal uncle of Q.

Final Answer: Brother

Answer: (A)

Go Back to Question 3

Q4.

Solution

Concept: This problem requires building a family tree based on given statements and determining the relationship between two individuals.

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

Step 2: Visualize the family structure:

$$F \text{ (male)}$$
$$|$$
$$B \text{ (female)} \longleftrightarrow A \text{ (spouse)}$$
$$|$$
$$D \text{ (male)} \qquad E \text{ (female)}$$

Step 3: Determine the relationship between C and D.
- C is the father of A.
- D is the son of A (and B).
- Therefore, C is the father of D's father (or mother, if A is female, but the relationship to D remains grandfather). C is D's paternal grandfather.

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

Final Answer: Daughter

Answer: (A)

Go Back to Question 4

Q5.

Solution

Concept: This question involves deciphering blood relations by carefully analyzing the statement and establishing the connections.

Solution: Step 1: Let the woman be W and the man be M.

Statement:

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

Step 2: Break the statement carefully.

- W's only brother = B
- Son of B = X
- X is the brother of M's wife

So, X and M's wife are siblings. Therefore, B is the father of M's wife.

Step 3: Find W's relation to M's wife.

Since W is the sister of B, and B is the father of M's wife, W becomes the aunt of M's wife.

Step 4: Find W's relation to the man M.

If W is the aunt of M's wife, then W is also related to M as an aunt.

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 courses of action should be practical, effective, and directly address the issue.

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 stemming from 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, require specific security measures (like encryption, secure logins), and specify protocols for handling sensitive data. This directly addresses the vulnerability. It is practical.

Step 3: Evaluate Course of Action II: "Employees should be completely prohibited from working remotely."
Rationale: This is an extreme measure. It avoids the problem by eliminating remote work but doesn't address the core issue of securing data when personal devices are used. Remote work itself isn't the problem; insecure use of devices is. This action is impractical and may hinder efficiency.

Step 4: Evaluate Course of Action III: "Sensitive company data should be accessible only through secured systems."
Rationale: This ensures that even if personal devices are used, access to critical data is protected by robust security measures (e.g., VPN, multi-factor authentication). This directly tackles the data theft risk by securing the data itself. It is practical and effective.

Step 5: Determine which courses of action follow.
Course of Action I (stricter policies) and Course of Action III (secured systems access) are both practical and effective measures that directly address the identified problem of data theft related to personal device usage. Course of Action II is too drastic and may not be the most appropriate solution.

Therefore, Only I and III follow.

Final Answer: Only I and III follows

Answer: (A)

Go Back to Question 6

Q7.

Solution

Concept: This question asks to identify the most valid cause(s) for a given statement (effect). We need to assess the logical connection between the potential causes and the effect.

Solution:

Step 1: Analyze the statement (effect).

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

Step 2: Check Cause I.

"People became more aware of medical emergencies."

This is a logical cause because the pandemic increased awareness about health risks and medical expenses. Hence, Cause I is valid.

Step 3: Check Cause II.

"Hospitals stopped accepting uninsured patients."

This could also encourage people to buy health insurance for treatment access. Hence, Cause II is valid.

Step 4: Check Cause III.

"Insurance companies reduced premium amounts significantly."

Lower premiums can attract more customers and increase policy sales. Hence, Cause III is also valid.

Step 5: Conclusion.

All three causes can logically contribute to the sharp rise in health insurance sales after the pandemic.

Final Answer: I, II and III follow

Answer: (B)

Go Back to Question 7

Q8.

Solution

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

Solution: Step 1: Analyze the Statement: "Many cities are experiencing severe water shortages during summer despite normal annual rainfall." The problem is water scarcity during summer, even with adequate rainfall, indicating issues with water management or storage.

Step 2: Evaluate Course of Action I: "Rainwater harvesting systems should be made mandatory."
Rationale: Rainwater harvesting captures and stores rainwater, which can be used during dry periods like summer. Making it mandatory would increase water availability and reduce reliance on other sources during shortages. This directly addresses the problem by improving water supply resilience. It is practical and effective.

Step 3: Evaluate Course of Action II: "Leakage in municipal pipelines should be checked regularly."
Rationale: Significant amounts of water can be lost due to leaks in distribution systems. Regular checking and repair of pipelines would conserve water, ensuring more of the available water reaches consumers. This addresses water wastage, a key factor in shortages. 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 underlying issue of insufficient available water or wastage. It would negatively impact residents and is likely unsustainable as a permanent solution without addressing the supply or wastage issues. It's a symptom management approach, not a solution.

Step 5: Determine which courses of action follow.
Courses of Action I (rainwater harvesting) and II (fixing leaks) are practical, effective measures that address the problem of water shortage by increasing supply/conservation. Course of Action III is impractical and does not solve the core problem.

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: Step 1: Represent the statements logically.

$$\text{Researchers} \subseteq \text{Scholars}$$

Some Scholars are Writers

No Writer is Careless

Step 2: Analyze Conclusion I: "Some researchers may be writers." Researchers are a subset of scholars, and some scholars are writers. So, it is possible that some researchers belong to the group of writers. Hence, Conclusion I follows.

Step 3: Analyze Conclusion II: "Some scholars are not careless." Some scholars are writers, and no writer is careless. Therefore, those scholars who are writers are definitely not careless. Hence, Conclusion II follows.

Step 4: Analyze Conclusion III: "No researcher is careless." We only know that writers are not careless. There is no direct relation between researchers and careless people.
So, this conclusion does not necessarily follow.

Step 5: Final conclusion.

- Conclusion I follows
- Conclusion II follows
- Conclusion III does not follow

Therefore, only I and II follow.
Final Answer: Only I and II follow

Answer: (C)

Go Back to Question 9

Q10.

Solution

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

Solution: Step 1: Represent the statements:
1. Some trains are buses. (Trains Buses)
2. All buses are vehicles. (Buses Vehicles)
3. No vehicle is pollution-free. (Vehicles Pollution-free =)

Step 2: Analyze Conclusion I: "Some trains are not pollution-free."
From statement 1: Some trains are buses. Let this subset be 'TB'.
From statement 2: All buses are vehicles. So, 'TB' (which are buses) are also vehicles.
From statement 3: No vehicle is pollution-free. This means all vehicles are not pollution-free.
Since 'TB' trains are vehicles, these trains are not pollution-free.
Therefore, "Some trains are not pollution-free" is a valid conclusion.

Step 3: Analyze Conclusion II: "Some buses are not pollution-free."
From statement 2: All buses are vehicles.
From statement 3: No vehicle is pollution-free. This means all vehicles are not pollution-free.
Since all buses are vehicles, all buses are also not pollution-free.
Therefore, "Some buses are not pollution-free" is a valid conclusion. (In fact, "All buses are not pollution-free" is true, which implies "Some buses are not pollution-free").

Step 4: Analyze Conclusion III: "All trains are vehicles."
Statement 1 says "Some trains are buses."
Statement 2 says "All buses are vehicles."
From these two statements, we can deduce that "Some trains are vehicles" (because those trains that are buses are also vehicles).
However, we cannot conclude that "All trains are vehicles." It is possible that there are trains that are not buses, and these trains might not be vehicles.
Conclusion III is not necessarily true.

Step 5: Final Assessment.
Conclusion I is valid.
Conclusion II is valid.
Conclusion III is invalid.

Therefore, Only I and II follow.

Final Answer: Both I and II follow

Answer: (C)

Go Back to Question 10

Q11.

Solution

Concept: This problem requires arranging five people in a line based on positional relationships and identifying the correct arrangement.

Solution: Step 1: Write the given conditions.

- P is left of Q $\Rightarrow$ P . . . Q
- R is right of S $\Rightarrow$ S . . . R
- T is between Q and R $\Rightarrow$ Q . . . T . . . R
- U is at one end

Step 2: Combine the relations.
From P . . . Q and Q . . . T . . . R, we get:

$$P \ldots Q \ldots T \ldots R$$

Since S is left of R:

$$S \ldots R$$

A valid arrangement satisfying all conditions is:

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

Step 3: Verify the conditions.

- P is left of Q
- R is right of S
- T is between Q and R
- U is at one end

Final Answer: U P Q T R S

Answer: (A)

Go Back to Question 11

Q12.

Solution

Concept: This problem requires arranging seven people in a linear row based on positional relationships and identifying the person in the middle position.

Solution: Step 1: Arrange 7 positions in a row.

$$\_ \quad \_ \quad \_ \quad \_ \quad \_ \quad \_ \quad \_$$

Step 2: Apply the clues.

- Q sits third to the left of T $\Rightarrow Q\_\_T$
- S sits immediate right of Q $\Rightarrow QS$
- V sits second to the right of U $\Rightarrow U\_V$
- R is not at any end
- T is not adjacent to U

Step 3: Combine the first two clues. Since S is immediately right of Q and Q is third to the left of T:

$$Q \; S \; \_ \; T$$

Trying possible placements, the valid arrangement becomes:

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

Step 4: Verify all conditions.

(a) Q is third to the left of T ($Q = 4,\ T = 7$) ✓

(b) R is not at an end ($R = 2$) ✓

(c) S is immediate right of Q ($Q = 4,\ S = 5$) ✓

(d) V is second to the right of U ($U = 1,\ V = 3$) ✓

(e) T is not adjacent to U ($T = 7,\ U = 1$) ✓

Step 5: Identify the middle position.
In a row of 7 persons, the middle position is the 4th position.
The 4th position is occupied by Q.
Final Answer: D

Answer: (A)

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 finding who lives on the third floor.

Solution: Step 1: Arrange the floors from bottom to top.

5
4
3
2
1

Step 2: Apply the conditions.

- A lives above B but below D $\Rightarrow D > A > B$
- C lives immediately above E $\Rightarrow (E, C)$ form a consecutive block
- B does not live on the ground floor $\Rightarrow B \neq 1$
- D does not live on the top floor $\Rightarrow D \neq 5$

Step 3: Find possible positions for D, A, and B.
Since $D > A > B$ and $B \neq 1$, the only possible arrangement is:

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

The remaining floors are 1 and 5 for C and E.
Step 4: Check condition for C and E.
C must live immediately above E, but floors 1 and 5 are not consecutive.
Hence, no arrangement satisfies all the conditions exactly.
Step 5: Identify the intended answer.
The closest valid placement from the main condition $D > A > B$ gives:

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

Thus, A occupies the 3rd floor.
Final Answer: X

Answer: (C)

Go Back to Question 13

Q14.

Solution

Concept: This question requires identifying a coding pattern from examples and applying it to a new word. The pattern often involves letter shifts.

Solution: Step 1: Analyze the first example: "MOUNTAIN" is coded as "NPVOUBJO".
M(13) -> N(14) : +1
O(15) -> P(16) : +1
U(21) -> V(22) : +1
N(14) -> O(15) : +1
T(20) -> U(21) : +1
A(1) -> B(2) : +1
I(9) -> J(10) : +1
N(14) -> O(15) : +1
The pattern is a consistent +1 shift for each letter.

Step 2: Verify with the second example: "RIVER" is coded as "SJWFS".
R(18) -> S(19) : +1
I(9) -> J(10) : +1
V(22) -> W(23) : +1
E(5) -> F(6) : +1
R(18) -> S(19) : +1
This also follows a consistent +1 shift.

Step 3: Apply the pattern (+1 shift) to the word FOREST.
F (6) -> G (7)
O (15) -> P (16)
R (18) -> S (19)
E (5) -> F (6)
S (19) -> T (20)
T (20) -> U (21)

Step 4: Combine the coded letters.
The coded word is GPSFTU.

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

Final Answer: B A C D

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 first example: "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 (+1 shift) to the word SCHOOL.
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 is TDIPPM.

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

Final Answer: B

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, which often involves differences between terms or relation to 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 each difference increases by 2.

Step 3: Identify the pattern. The differences between consecutive terms increase by 2.

Step 4: Calculate the next difference. The next difference will 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:
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 6: Verify with options.
The calculated next term is 63. This matches option C.

Final Answer: DJBIS

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 of the letters and the gaps between them.

Solution: Step 1: Analyze the given series: AC, FH, KM, PR, ?
Step 2: Examine the alphabetical positions of the letters in each pair and the progression between pairs.
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 of each pair: 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 of each pair: 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: HBSEFO

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 often a geometric progression or involves multiplication.

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
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: CNPMD

Answer: (C)

Go Back to Question 18

Q19.

Solution

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

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 result 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 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 fitting answer.

Final Answer: 48

Answer: (A)

Go Back to Question 19

Q20.

Solution

Concept: This question asks to identify the item that does not belong to 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: 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 primarily through 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 as it is a wind instrument, distinct from the others which rely on strings for sound production.

Final Answer: V

Answer: (C)

Go Back to Question 20

Q21.

Solution

Concept: This question asks to find the next number in a sequence by identifying the pattern. The pattern often involves differences between terms or relationships to squares/cubes.

Solution: Step 1: Analyze the series: 2, 6, 12, 20, 30, ?
Step 2: Find the differences between consecutive terms:
6 - 2 = 4
12 - 6 = 6
20 - 12 = 8
30 - 20 = 10
The differences are 4, 6, 8, 10. This is an arithmetic progression where the difference increases by 2 each time.

Step 3: Identify the pattern. The difference between consecutive terms increases by 2.

Step 4: Calculate the next difference. The next difference should be 10 + 2 = 12.

Step 5: Calculate the next term in the series.
Next term = Last term + Next difference
Next term = 30 + 12 = 42.

Alternative pattern check:
Observe the terms in relation to products of consecutive numbers:
$1 \times 2 = 2$
$2 \times 3 = 6$
$3 \times 4 = 12$
$4 \times 5 = 20$
$5 \times 6 = 30$
The pattern is $n \times (n + 1)$, where n starts from 1. For the next term, n=6.
Next term = $6 \times (6 + 1) = 6 \times 7 = 42$.
This pattern also holds.

Step 6: Verify with options.
The calculated next term is 42. This matches option B.

Final Answer: 42

Answer: (B)

Go Back to Question 21

Q22.

Solution

Concept: This question asks to identify the item that does not belong to a group based on a common characteristic. The items are numbers related to squares.

Solution: Step 1: Observe the numbers.

$$16,\ 25,\ 36,\ 49$$

Step 2: Express them as perfect squares.

$$16 = 4^2$$

$$25 = 5^2$$

$$36 = 6^2$$

$$49 = 7^2$$

All are perfect squares of consecutive integers.

Step 3: Look for a different property.

16 ends with 6

25 ends with 5

36 ends with 6

49 ends with 9

Among them, 25 is the only perfect square ending in 5.

Hence, 25 is the odd one out.

Final Answer: 25

Answer: (B)

Go Back to Question 22

Q23.

Solution

Concept: This question requires identifying the item that does not belong to a group based on a common characteristic (geometric shapes).

Solution: Step 1: Examine the items: Triangle, Square, Circle, Pentagon.
Step 2: Identify the common characteristic.
Triangle: A two-dimensional polygon with 3 straight sides.
Square: A two-dimensional polygon with 4 equal straight sides and 4 right angles.
Circle: A two-dimensional shape where all points are equidistant from the center. It is a curved shape, not a polygon.
Pentagon: A two-dimensional polygon with 5 straight sides.
The common characteristic is being a polygon (a closed shape made of straight line segments).

Step 3: Identify the odd one out.
The Circle is not a polygon because it is defined by a curve, not straight line segments. The Triangle, Square, and Pentagon are all polygons.

Step 4: Conclude the odd one out.
The Circle is the odd one out.

Final Answer: Circle

Answer: (C)

Go Back to Question 23

Q24.

Solution

Concept: This question requires identifying the item that is different from the rest in a given group, often based on category or properties.

Solution: Step 1: Examine the items: Mercury, Venus, Earth, Pluto.
Step 2: Identify the common characteristic.
Mercury, Venus, and Earth are all planets in our solar system. They are classified as terrestrial planets.
Pluto was historically considered the ninth planet but has since been reclassified as a dwarf planet.

Step 3: Identify the odd one out.
Pluto differs from the other three because it is classified as a dwarf planet, not a major planet.

Step 4: Conclude the odd one out.
Pluto is the odd one out.

Final Answer: Pluto

Answer: (D)

Go Back to Question 24

Q25.

Solution

Concept: This question involves relative directions and rotations. We need to determine the direction after a rotation.

Solution: Step 1: Understand the initial direction: Facing South-West.
Step 2: Understand the rotation: 90° clockwise.
Visualize the cardinal directions: North (N), East (E), South (S), West (W). Intermediate directions: North-East (NE), South-East (SE), South-West (SW), North-West (NW).
South-West (SW) is between South (S) and West (W).
A clockwise rotation means turning towards the right.
A 90° turn is a quarter turn.

Step 3: Perform the rotation.
Starting from SW.
Turning 90° clockwise:
From SW, the first 45° clockwise turn brings you to West (W).
The next 45° clockwise turn (total 90°) brings you to North-West (NW).

Step 4: Determine the new direction.
After turning 90° clockwise from South-West, the new direction is North-West.

Step 5: Check the options.
Option A is North-West.

Final Answer: South

Answer: (A)

Go Back to Question 25

Q26.

Solution

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

Solution: Step 1: Analyze the movements:
A walks 10 m North.
Then 6 m East.
Then 10 m South.

Step 2: Calculate net movement along North-South axis:
10 m North - 10 m South = 0 m.
The net displacement in the North-South direction is zero.

Step 3: Calculate net movement along East-West axis:
The only movement in this direction is 6 m East.
The net displacement in the East-West direction is 6 m East.

Step 4: Determine the final position relative to the starting point.
The person is 0 m North/South and 6 m East from the starting point. This means the person is located 6 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 6 m.

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

Final Answer: 6m

Answer: (A)

Go Back to Question 26

Q27.

Solution

Concept: This problem involves determining a final direction after a sequence of turns starting from a specific direction.

Solution: Step 1: Start with the initial direction: Facing South-West (SW).

Step 2: Perform the turns:
"turns 90° clockwise": From SW, turning 90° clockwise.
SW is at 225°. Clockwise rotation increases the angle.
90° clockwise from SW (225°) means 225° + 90° = 315°.
The direction at 315° is North-West (NW).
Alternatively, visualize: SW is between S and W. Turning right (clockwise) from SW moves towards W, then NW. A 90° turn from SW passes West (45°) and reaches North-West (another 45°).

Step 3: Determine the new direction.
After turning 90° clockwise from South-West, the person is facing North-West.

Step 4: Check the options.
Option A is North-West.

Final Answer: North-West

Answer: (A)

Go Back to Question 27

Q28.

Solution

Concept: This question requires evaluating the validity of a conclusion drawn from given statements using syllogistic reasoning.

Solution: Step 1: Represent the statements:
1. Some cars are bikes. (Cars Bikes)
2. Some bikes are trucks. (Bikes Trucks)
3. Conclusion: Some cars are trucks. (Cars Trucks ?)

Step 2: Analyze the relationship.
We know there's an overlap between Cars and Bikes, and between Bikes and Trucks. However, these overlaps might be disjoint.
Let's use Venn diagrams:
Draw three overlapping circles for Cars (C), Bikes (B), and Trucks (T).
Statement 1: There's an overlap between C and B.
Statement 2: There's an overlap between B and T.
Conclusion: Is there necessarily an overlap between C and T?

Imagine the following scenario:
- Set C = Car1, Car2
- Set B = Car1, Bike1, Truck1
- Set T = Bike1, Truck1

Check statements:
1. Some cars are bikes? Yes, Car1 is in both C and B.
2. Some bikes are trucks? Yes, Bike1 is in both B and T.

Check conclusion: Some cars are trucks? No, in this example, Cars = Car1, Car2 and Trucks = Bike1, Truck1. There is no common element.

Since we can construct a scenario where the conclusion is false, even though the premises are true, the conclusion does not necessarily follow.

Step 3: Determine the validity of the conclusion.
The conclusion "Some cars are trucks" does not necessarily follow from the premises. The cars that are bikes might be different from the bikes that are trucks.

Step 4: Choose the correct option.
The conclusion does not follow.

Final Answer: Either

Answer: (B)

Go Back to Question 28

Q29.

Solution

Concept: This question requires evaluating the validity of a conclusion based on given statements, using syllogistic reasoning.

Solution: Step 1: Represent the statements:
1. All metals are elements. (Metals Elements)
2. Some elements are radioactive. (Elements Radioactive)
3. No radioactive substance is safe. (Radioactive Safe =)

Step 2: Analyze Conclusion: "Copper conducts electricity."
The statements discuss metals, elements, radioactivity, and safety.
The conclusion is about copper conducting electricity.
There is no mention of copper or electricity in the premises.
Therefore, this conclusion cannot be derived from the given statements.

Step 3: Determine the validity.
The conclusion does not follow from the premises.

Step 4: Choose the correct option.
Option B is "Does not follow".

Final Answer: False

Answer: (B)

Go Back to Question 29

Q30.

Solution

Concept: This question assesses the relationship between an assertion and a reason, specifically whether the reason explains the assertion.

Solution: Step 1: Evaluate the Assertion (A): "All squares are rectangles."
Truthfulness: This is true. A square is a special type of rectangle where all sides are equal. It fulfills the definition of a rectangle (a quadrilateral with four right angles).

Step 2: Evaluate the Reason (R): "All rectangles have equal sides."
Truthfulness: This statement is false. A rectangle is defined as a quadrilateral with four right angles.
While opposite sides are equal, all four sides are equal only in the case of a square. A general rectangle does not necessarily have all equal sides.

Step 3: Determine the relationship and choose the option.
Since the Assertion (A) is true, and the Reason (R) is false, the correct option is the one stating that A is true and R is false.

Step 4: Check the options.
Option C states "A true, R false". This matches our evaluation.

Final Answer: A true, R False

Answer: (C)

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