MAT Intelligence and Critical Reasoning Sample Paper-20

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 girl, Arjun said: "She is the daughter of the only son of my grandfather's wife."

How is the girl related to Arjun?

(A) Sister

(B) Cousin

(C) Aunt

(D) Niece

Q2. A is the brother of B. C is the mother of A. D is the father of C. E is the sister of D. F is the daughter of E.

How is F related to B?

(A) Cousin

(B) Aunt

(C) Great Aunt

(D) Niece

Q3. Introducing a man, Kavita said: "He is the husband of the only daughter of my father's brother."

How is the man related to Kavita?

(A) Cousin

(B) Brother-in-law

(C) Uncle

(D) Nephew

Q4. P is the father of Q. R is the sister of P. S is the husband of R. T is the daughter of S.

How is T related to Q?

(A) Sister

(B) Cousin

(C) Aunt

(D) Niece

Q5. Pointing towards a photograph, Neeraj said: "He is the son of the only daughter of my maternal grandfather."

How is the man related to Neeraj?

(A) Brother

(B) Cousin

(C) Nephew

(D) Uncle

Q6. **Statement:** The number of fraudulent online investment schemes has increased rapidly.

Courses of Action:

I. Launch nationwide financial awareness campaigns.

II. Ban all digital payment applications permanently.

(A) Only I follows

(B) Only II follows

(C) Both I and II follow

(D) Neither I nor II follows

Q7. **Statement:** Several companies are facing a shortage of skilled employees.

Possible Causes:

I. Rapid technological advancements.

II. Lack of industry-oriented training programs.

(A) Only I is implicit

(B) Only II is implicit

(C) Both I and II are implicit

(D) Neither I nor II is implicit

Q8. **Statement:** Air pollution levels in industrial cities have crossed dangerous limits.

Courses of Action:

I. Introduce stricter emission regulations.

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

Q9. **Statement:** The number of students preferring foreign universities has increased sharply.

Possible Causes:

I. Availability of better research opportunities abroad.

II. Growing international career prospects.

(A) Only I is implicit

(B) Only II is implicit

(C) Both I and II are implicit

(D) Neither I nor II is implicit

Q10. **Statement:** Incidents of cyber bullying among teenagers have increased significantly.

Courses of Action:

I. Introduce cyber ethics education in schools.

II. Ban all social media access for teenagers.

(A) Only I follows

(B) Only II follows

(C) Both I and II follow

(D) Neither I nor II follows

Q11. **Statement:** All novels are books.

Some books are expensive.

No expensive thing is useless.

Conclusion:

I. Some books are not useless.

II. No novel is useless.

(A) Only I follows

(B) Only II follows

(C) Both I and II follow

(D) Neither I nor II follows

Q12. **Statement:** Some doctors are surgeons.

All surgeons are experienced.

No experienced person is careless.

Conclusion:

I. Some doctors are not careless.

II. All doctors are experienced.

(A) Only I follows

(B) Only II follows

(C) Both I and II follow

(D) Neither I nor II follows

Q13. **Statement:** All smartphones are electronic devices.
Some electronic devices are costly.
No costly thing is outdated.

Conclusion:
I. Some electronic devices are not outdated.
II. No smartphone is outdated.

(A) Only I follows

(B) Only II follows

(C) Both I and II follow

(D) Neither I nor II follows

Q14. **Statement:** No athlete is lazy.
Some athletes are students.
All students are ambitious.

Conclusion:
I. Some ambitious people are not lazy.
II. No student is lazy.

(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 facing North.
A sits fourth to the left of E.
B sits second to the right of A.
C sits immediately left of D.
F is not at any end.
G sits third to the right of H.

Who sits exactly in the middle?

(A) B and F

(B) A and B

(C) D and F

(D) Cannot be determined

Q16. Eight friends P, Q, R, S, T, U, V and W sit around a circular table facing the centre.

P sits second to the right of Q.

R sits opposite T.

S sits immediate left of P.

U is not adjacent to R.

V sits between T and W.

Who sits opposite P?

(A) Q

(B) T

(C) W

(D) Cannot be determined

Q17. Seven books A, B, C, D, E, F and G are arranged vertically.

A is above D but below C.

B is immediately below F.

E is above G.

D is not at the bottom.

F is not at the top.

Which book is at the top?

(A) C

(B) E

(C) F

(D) Cannot be determined

Q18. Eight students P, Q, R, S, T, U, V and W stand in a queue.
Q stands third to the left of T.
R stands immediately right of P.
W is at one end.
S is not adjacent to Q.
U stands second to the right of V.
Who stands fourth from the left end?

(A) P
(B) Q
(C) T
(D) Cannot be determined

Q19. If "HUNTER" is coded as "IVOUFS", then "MARKET" will be coded as:

(A) NBSLFU
(B) NBTLFU
(C) OBSMGV
(D) MCRMGV

Q20. In a certain code language,
"CAPTAIN" is written as "NIATPAC".
How will "GENERAL" be written?

(A) LARENEG
(B) LARENEG
(C) LRAENEG
(D) LARENGE

Q21. If "BRIDGE" is coded as "CSJEHF", then "PLANET" will be coded as:

(A) QMBOFU
(B) RMBPGU

(C) PMBOFU

(D) QMBPGU

Q22. Find the next term in the series:

8, 17, 35, 71, 143, ?

(A) 215

(B) 255

(C) 287

(D) 289

Q23. Find the next term in the series:

F, L, R, X, D, ?

(A) H

(B) I

(C) J

(D) K

Q24. Find the next number in the series:

5, 16, 49, 148, 445, ?

(A) 1098

(B) 1214

(C) 1336

(D) 1450

Q25. Choose the odd one out:

(A) Cube

(B) Sphere

(C) Cylinder

(D) Triangle

Q26. Choose the odd one out:

(A) Aluminium

(B) Copper

(C) Silver

(D) Plastic

Q27. A person walks 15m North, then 36m East, then 15m South.

How far is the person from the starting point?

(A) 15m

(B) 36m

(C) 39m

(D) 51m

Q28. A man starts facing East.

He turns 135° clockwise and then 45° anticlockwise.

Which direction is he facing now?

(A) South

(B) South-East

(C) North-East

(D) West

Q29. **Assertion (A):** Every square is a rhombus.

Reason (R): All sides of a square are equal.

(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 lawyers are professors.
All professors are educated.

Conclusion:
I. Some lawyers are educated.
II. All educated people are professors.

(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 is a blood relation problem. We need to trace the relationship described by Arjun by breaking down the statement step-by-step.

Solution:

Step 1: Arjun is speaking. He refers to "my grandfather's wife". This is Arjun's paternal grandmother.

Step 2: "The only son of my grandfather's wife" refers to the son of Arjun's paternal grandmother. This is Arjun's father (assuming he is the only son, or even if he has brothers, his father is a son of his grandfather's wife).

Step 3: "She is the daughter of the only son of my grandfather's wife" means she is the daughter of Arjun's father.

Step 4: The daughter of one's father is one's sister.

Final Answer: Sister

Answer: (A)

Go Back to Question 1

Q2.

Solution

Concept: This is a blood relation problem. We need to trace the relationships given to determine the connection between F and B.

Solution: Step 1: "A is the brother of B." (A ↔ B)

Step 2: "C is the mother of A." (C → Mother of → A). Since A is B's brother, C is also B's mother.

Step 3: "D is the father of C." (D → Father of → C). Since C is B's mother, D is B's maternal grandfather.

Step 4: "E is the sister of D." (E ↔ Sister of ↔ D). Since D is B's maternal grandfather, E is the sister of B's maternal grandfather.

Step 5: The sister of one's maternal grandfather is one's great aunt. So, E is B's great aunt.

Step 6: "F is the daughter of E." (F → Daughter of → E). Since E is B's great aunt, F is the daughter of B's great aunt.

Step 7: The daughter of one's great aunt is also one's great aunt.

Final Answer: Great Aunt

Answer: (C)

Go Back to Question 2

Q3.

Solution

Concept: This is a blood relation problem. We need to break down the statement made by Kavita to understand the relationship of the man to her.

Solution: Step 1: Kavita is speaking. "My father's brother" is Kavita's paternal uncle.
Step 2: "The only daughter of my father's brother" is the daughter of Kavita's paternal uncle. This makes her Kavita's cousin.
Step 3: "He is the husband of the only daughter of my father's brother" means he is the husband of Kavita's cousin.
Step 4: The husband of one's cousin is one's cousin-in-law, which in these puzzles is typically referred to as brother-in-law.

Final Answer: Brother-in-law

Answer: (B)

Go Back to Question 3

Q4.

Solution

Concept: This is a blood relation problem. We need to trace the family connections to determine the relationship between T and Q.

Solution: Step 1: "P is the father of Q." (P → Father of → Q)
Step 2: "R is the sister of P." (R ↔ Sister of ↔ P). This means R is P's sister.
Step 3: "S is the mother of P." (S → Mother of → P). Since P is Q's father, S is Q's paternal grandmother. Since R is P's sister, S is also R's mother.
Step 4: "T is the husband of S." (T ↔ Husband of ↔ S). Since S is Q's paternal grandmother, T is the husband of Q's paternal grandmother.
Step 5: The husband of one's paternal grandmother is one's paternal grandfather. Therefore, T is Q's paternal grandfather.
Step 6: Since T is Q's paternal grandfather, and R is P's sister (meaning R is Q's father's sister), R is Q's paternal aunt. T is the husband of Q's paternal grandmother. T is also the husband of R's mother.
The question asks how T is related to R. S is the mother of P and R. T is the husband of S. Therefore, T is the husband of R's mother.
Step 7: The husband of one's mother is one's father. Therefore, T is R's father.

Final Answer: Father

Answer: (C)

Go Back to Question 4

Q5.

Solution

Concept: This is a blood relation problem. We need to decipher the relationship from Neeraj's perspective by tracing the lineage.

Solution: Step 1: Neeraj is speaking. Therefore, "my maternal grandfather" refers to Neeraj's mother's father.

Step 2: The "only daughter of my maternal grandfather" must be Neeraj's mother.

Step 3: The statement says, "He is the son of the only daughter of my maternal grandfather." So, the boy is the son of Neeraj's mother.

Step 4: The son of Neeraj's mother can either be Neeraj himself or Neeraj's brother. In blood relation questions, when no separate person is specified, it usually refers to the speaker himself.

Therefore, the boy is Neeraj himself. Hence, the relation described is **Son**.

Final Answer: Son

Answer: (D)

Go Back to Question 5

Q6.

Solution

Concept: This question requires evaluating proposed courses of action to address a problem stated in a statement. A course of action is valid if it is a practical, logical, and effective measure.

Statement: The number of fraudulent online investment schemes has increased rapidly.

Courses of Action:
I. Launch nationwide financial awareness campaigns.
II. Ban all digital payment applications permanently.

Analysis of Course of Action I:
Launching nationwide financial awareness campaigns is a proactive and educational approach to combat fraudulent schemes. By educating the public about common red flags, risks, and safe investment practices, people can become more vigilant and less susceptible to such scams. This directly addresses the problem by empowering individuals.

Analysis of Course of Action II:
Permanently banning all digital payment applications is an extreme, impractical, and overly broad measure. Digital payment systems are essential for modern commerce and daily life. Banning them would cripple the economy and inconvenience millions of users. It is not a targeted solution, as fraud can occur through various means, and a complete ban is disproportionate to the problem.

Conclusion:
Only Course of Action I is a logical, practical, and effective step to address the increase in fraudulent online investment schemes.

Final Answer: Only I follows

Answer: (A)

Go Back to Question 6

Q7.

Solution

Concept: This question asks to identify plausible causes for a given statement. A cause is a factor that can reasonably lead to the situation described in the statement.

Statement: Several companies are facing a shortage of skilled employees.

Possible Causes:
I. Rapid technological advancements.
II. Lack of industry-oriented training programs.

Analysis of Possible Cause I:
Rapid technological advancements can lead to a mismatch between the skills employees currently possess and the skills required by emerging technologies and industry needs. If the workforce's skills do not keep pace with technological changes, companies may find it difficult to find employees with the necessary expertise, leading to a shortage. This is a plausible cause.

Analysis of Possible Cause II:
If training programs in educational institutions or vocational centers are not aligned with the current demands of industries (i.e., lack industry-oriented training), graduates may not possess the specific skills employers are looking for. This deficiency in relevant training can directly result in a shortage of skilled employees for companies. This is also a plausible cause.

Conclusion:
Both rapid technological advancements (making existing skills obsolete) and a lack of industry-oriented training (failing to equip the workforce with needed skills) can contribute to companies facing a shortage of skilled employees.

Final Answer: Both I and II are implicit

Answer: (C)

Go Back to Question 7

Q8.

Solution

Concept: This question requires evaluating proposed courses of action in response to a problem described in a statement. A valid course of action should be practical, logical, and effective in addressing the issue.

Statement: Air pollution levels in industrial cities have crossed dangerous limits.

Courses of Action:
I. Introduce stricter emission regulations.
II. Shut down all industries permanently.

Analysis of Course of Action I:
Introducing stricter emission regulations for industries is a direct and effective measure to control air pollution. By setting lower limits on pollutants released from industrial activities and enforcing these regulations, it is possible to reduce the overall air pollution levels. This is a practical and targeted solution.

Analysis of Course of Action II:
Permanently shutting down all industries is an extreme, impractical, and economically devastating measure. While it would eliminate industrial pollution, it would also lead to widespread unemployment, economic collapse, and social unrest. It is not a feasible or proportionate response to air pollution.

Conclusion:
Only Course of Action I is a sensible and effective measure to address the dangerous levels of air pollution in industrial cities.

Final Answer: Only I follows

Answer: (A)

Go Back to Question 8

Q9.

Solution

Concept: This question asks to identify plausible causes for a given statement. A cause is a factor that can logically explain the situation described in the statement.

Statement: The number of students preferring foreign universities has increased sharply.

Possible Causes:
I. Availability of better research opportunities abroad.
II. Growing international career prospects.

Analysis of Possible Cause I:
Foreign universities often offer advanced research facilities, specialized programs, and opportunities to work with leading academics in a particular field. Access to these better research opportunities can be a significant draw for students seeking advanced studies or careers in research, thus contributing to a preference for foreign universities. This is a plausible cause.

Analysis of Possible Cause II:
Graduating from a foreign university can sometimes enhance a student's resume and open doors to better job opportunities, higher salaries, and international career paths. The perception of improved global career prospects acts as a strong motivator for students to pursue education abroad. This is also a plausible cause.

Conclusion:
Both the availability of better research opportunities and the prospect of improved international career opportunities are common and significant reasons why students might increasingly prefer foreign universities.

Final Answer: Both I and II are implicit

Answer: (C)

Go Back to Question 9

Q10.

Solution

Concept: This question requires evaluating proposed courses of action in response to a problem described in a statement. A valid course of action should be practical, logical, and effective in addressing the issue.

Statement: Incidents of cyber bullying among teenagers have increased significantly.

Courses of Action:
I. Introduce cyber ethics education in schools.
II. Ban all social media access for teenagers.

Analysis of Course of Action I:
Introducing cyber ethics education in schools is a proactive and constructive measure. Educating teenagers about responsible online behavior, the impact of cyberbullying, privacy settings, and reporting mechanisms can help prevent incidents and equip them to deal with such situations. This approach addresses the root cause by fostering awareness and good digital citizenship.

Analysis of Course of Action II:
Banning all social media access for teenagers is an extreme and impractical solution. Social media offers various benefits, including communication, information access, and community building. A complete ban would restrict these benefits, is difficult to enforce effectively, and doesn't address the underlying issues of behavior and ethics. It is an overly restrictive measure.

Conclusion: Only Course of Action I is a sensible and effective measure to address the increase in cyber bullying among teenagers.

Final Answer: Only I follows

Answer: (A)

Go Back to Question 10

Q11.

Solution

Concept: This is a syllogism problem. We analyze the given statements to determine which conclusions logically follow.

Statements: 1. All novels are books. (All N are B)
2. Some books are expensive. (Some B are E)
3. No expensive thing is useless. (No E are U)

Analysis of Conclusion I: Some books are not useless.
From statement 2, we know that some books are expensive (Some B are E).
From statement 3, we know that no expensive thing is useless (No E are U).
This means that the books which are expensive are also not useless. Therefore, some books (those that are expensive) are not useless.
Conclusion I follows.

Analysis of Conclusion II: No novel is useless.
From statement 1, all novels are books (All N are B).
From statement 2, some books are expensive (Some B are E).
From statement 3, no expensive thing is useless (No E are U).

We know that all novels are books. Some books are expensive, and these expensive books are not useless. However, we do not know if novels fall into the category of books that are also expensive. It's possible that novels are books that are *not* expensive. If a novel is a book but not expensive, we cannot conclude it is not useless, as the 'useless' property is only excluded for expensive things. Conclusion II does not necessarily follow.

Final Answer: Only I follows

Answer: (A)

Go Back to Question 11

Q12.

Solution

Concept: This is a syllogism problem. We analyze the given statements to determine which conclusions logically follow.

Statements: 1. Some doctors are surgeons. (Some D are S)
2. All surgeons are experienced. (All S are Ex)
3. No experienced person is careless. (No Ex is C)

Analysis of Conclusion I: Some doctors are not careless.
From statement 1, we know that some doctors are surgeons (Some D are S).
From statement 2, all surgeons are experienced (All S are Ex). This implies that the doctors who are surgeons are also experienced. So, some doctors are experienced (Some D are Ex).
From statement 3, no experienced person is careless (No Ex is C). This means that anything that is experienced is not careless.
Since we have established that some doctors are experienced, and all experienced people are not careless, it logically follows that some doctors are not careless.
Conclusion I follows.

Analysis of Conclusion II: All doctors are experienced.
Statement 1 says "Some doctors are surgeons." This directly implies that not all doctors are necessarily surgeons.
Statement 2 says "All surgeons are experienced." This means if a doctor is a surgeon, then they are experienced. However, if a doctor is *not* a surgeon, we cannot conclude anything about their experience from these statements.
Since we know not all doctors are surgeons, we cannot conclude that all doctors are experienced.
Conclusion II does not follow.

Final Answer: Only I follows

Answer: (A)

Go Back to Question 12

Q13.

Solution

Concept: This is a syllogism problem. We need to determine which conclusions logically follow from the given premises.

Statements: 1. All smartphones are electronic devices. (All S are E)
2. Some electronic devices are costly. (Some E are C)
3. No costly thing is outdated. (No C are O)

Analysis of Conclusion I: Some electronic devices are not outdated.
From statement 2, we know that some electronic devices are costly (Some E are C).
From statement 3, we know that no costly thing is outdated (No C are O).
This means that the electronic devices which are costly are also not outdated. Therefore, some electronic devices (those that are costly) are not outdated.
Conclusion I follows.

Analysis of Conclusion II: No smartphone is outdated.
From statement 1, all smartphones are electronic devices (All S are E).
From statement 2, some electronic devices are costly (Some E are C).
From statement 3, no costly thing is outdated (No C are O).

We know that all smartphones are electronic devices. Some electronic devices are costly, and these costly devices are not outdated. However, we do not know if smartphones fall into the category of electronic devices that are also costly. It's possible that smartphones are electronic devices that are *not* costly. If a smartphone is electronic but not costly, we cannot conclude it is not outdated, as the 'outdated' property is only excluded for costly things.
Conclusion II does not necessarily follow.

Final Answer: Only I follows

Answer: (A)

Go Back to Question 13

Q14.

Solution

Concept: This is a syllogism problem. We need to determine which conclusions logically follow from the given statements.

Statements:

1. No athlete is lazy. (No A is L)
2. Some athletes are students. (Some A are S)
3. All students are ambitious. (All S are Am)

Analysis of Conclusion I: Some ambitious people are not lazy.

From statement 2, some athletes are students (Some A are S).
From statement 3, all students are ambitious (All S are Am).
This means that the athletes who are students are also ambitious. So, some athletes are ambitious (Some A are Am).
From statement 1, no athlete is lazy (No A is L).
Since some athletes are ambitious, and all athletes are not lazy, it follows that some ambitious people (those athletes who are ambitious) are not lazy.
Conclusion I follows.

Analysis of Conclusion II: No student is lazy.

From statement 2, we know that some athletes are students (Some A are S).
From statement 1, we know that no athlete is lazy (No A is L).
This implies that the students who are athletes are definitely not lazy.
However, statement 2 only says "Some athletes are students." This implies that there might be other students who are *not* athletes. We have no information about whether these non-athlete students are lazy or not. Therefore, we cannot conclude that no student is lazy.
Conclusion II does not necessarily follow.

Final Answer: Only I follows

Answer: (A)

Go Back to Question 14

Q15.

Solution

Concept: Linear Arrangement. Find the person at the 5th position from the left (middle).

Clues: 8 people (A-H), row facing North. A 4th left of E ('A _ _ _ E'). B 2nd right of A ('A _ B'). C imm left of D ('C D'). F not end. G 3rd right of H ('H _ _ G').

Deductions: Relative orders: 'A _ _ E', 'A _ B', 'C D', 'H _ _ G'. F not 1 or 8.

Consider placement of 'A _ B E'. One possibility is '_ A F B E C D G' (assuming H=1, G=8).
This gives middle person B.
Consider 'H C D G A F B E'. Middle (5th from left) is A.

Let's re-check the relative orders and constraints.
'A _ B E' (4 people). 'C D' (2 people). 'H _ _ G' (4 people). F (1 person).
Total 8 people.
If 'H _ _ G' starts at 1: 'H _ _ G _ _ _ _'. G=4.
A is 4th left of E. If E=8, A=5. 'H _ _ G A _ _ E'.
B is 2nd right of A. A=5. B=7. 'H _ _ G A _ B E'.
Remaining C, D, F for 2,3,6. 'C D' must be together. Slots (2,3).
'H C D G A _ B E'. F must be at 6. 'H C D G A F B E'.
Check F not end (F=6). Yes. C not end (C=2). Yes.
Middle person (5th from left) is A.

Let's check if other placements of 'H _ _ G' work.
If H=2, G=5: '_ H _ _ G _ _ _'.
A 4th left of E. E=8, A=5 (G). Invalid. E=7, A=4. '_ H _ A G _ E'.
B 2nd right of A. A=4. B=6. '_ H _ A B E'.
Remaining C, D, F for 1,3,7. 'C D' must be together. No adjacent slots. Invalid.

The arrangement 'H C D G A F B E' seems to be the most consistent.
H=1, C=2, D=3, G=4, A=5, F=6, B=7, E=8.
A(5) 4th left of E(8). Yes.
B(7) 2nd right of A(5). Yes.
C(2) D(3). CD together. Yes.
F(6) not end. Yes.
G(8) 3rd right of H(1). Yes.
Middle person (5th from left) is A.

Final Answer: A

Answer: (A)

Go Back to Question 15

Q16.

Solution

Concept: This is a circular arrangement problem. We need to arrange eight friends around a table based on the given clues and then determine who sits opposite a specific person.

Clues:

(a) Eight friends P, Q, R, S, T, U, V and W sit around a circular table facing the centre.

(b) P sits second to the right of Q.

(c) R sits opposite T.

(d) S sits immediately left of P.

(e) U is not adjacent to R.

(f) V sits between T and W.

Deductions:
From clues 2 and 4, the relative arrangement becomes:

$$Q\ S\ P$$

Assume:

$$Q = 1, \quad S = 2, \quad P = 3$$

Using the remaining clues, one valid arrangement is:

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

Checking:

- P is second to the right of Q
- S is immediately left of P
- R is opposite T
- U is not adjacent to R
- V sits between T and W

P is at seat 3, so the opposite seat is seat 7, occupied by V.

Final Answer: V

Answer: (C)

Go Back to Question 16

Q17.

Solution

Concept: This is a vertical arrangement problem. We need to stack seven books based on the given relative positions to determine which book is at the top.

Clues:

(a) Seven books A, B, C, D, E, F and G are arranged vertically.

(b) A is above D but below C. ($C > A > D$)

(c) B is immediately below F. (FB block)

(d) E is above G. ($E > G$)

(e) D is not at the bottom.

(f) F is not at the top.

Deductions: We have the fixed relations:

$$C > A > D, \qquad FB, \qquad E > G$$

Now check possible valid arrangements. One valid arrangement is:

$$C \quad A \quad F \quad B \quad E \quad D \quad G$$

Here, the bottom book is G. Another valid arrangement is:

$$E \quad G \quad F \quad B \quad C \quad A \quad D$$

Here, the bottom book is D. Since different valid arrangements give different bottom books, the bottom position cannot be uniquely determined.

Final Answer: Cannot be determined

Answer: (D)

Go Back to Question 17

Q18.

Solution

Concept: This is a linear arrangement problem. We need to arrange eight students in a queue based on the given clues and then determine who is fourth from the left end.

Clues:

(a) Eight students P, Q, R, S, T, U, V and W stand in a queue.

(b) Q stands third to the left of T.

(c) R stands immediately right of P.

(d) W is at one end.

(e) S is not adjacent to Q.

(f) U stands second to the right of V.

Deductions:
The fixed patterns are:

$$Q\_\_T, \qquad PR, \qquad V\_U$$

Also,

- W is at one end.
- S is not adjacent to Q.

One valid arrangement is:

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

Here, the middle person is Q. Another valid arrangement is:

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

Here, the middle person is P.
Since different valid arrangements give different middle persons, the answer cannot be uniquely determined.

Final Answer: Cannot be determined

Answer: (D)

Go Back to Question 18

Q19.

Solution

Concept: This is a coding-decoding problem based on letter shifts. We need to identify the pattern of transformation from the given coded word and apply it to the target word.

Given Code: HUNTER is coded as IVOUFS.

Analysis of the Code: Let's compare the letters of HUNTER with IVOUFS position by position:
H → I (+1)
U → V (+1)
N → O (+1)
T → U (+1)
E → F (+1)
R → S (+1)

Each letter in "HUNTER" is replaced by the very next letter in the English alphabet. This is a +1 shift for each letter.

Applying the Code to "MARKET": Now, we apply the same +1 shift to each letter of the word "MARKET":
M (+1) = N
A (+1) = B
R (+1) = S
K (+1) = L
E (+1) = F
T (+1) = U

Combining these shifted letters, we get the code for "MARKET" as NBSLFU.

Let's check the options:
A. NBSLFU
B. NBTLFU
C. OBSMGV
D. MCRMGV

Our derived code matches option A.

Final Answer: NBSLFU

Answer: (A)

Go Back to Question 19

Q20.

Solution

Concept: This is a coding-decoding problem where the transformation involves reversing parts of the word and applying a letter shift.

Given Code:

$$\text{CAPTAIN} \rightarrow \text{NIATPAC}$$

Analysis: Observe carefully:

$$\text{CAPTAIN} \xrightarrow{\text{reverse}} \text{NIATPAC}$$

So, the coding pattern is simply:

Reverse the word

Now apply the same rule to:

GENERAL

Reversing the word:

$$\text{GENERAL} \rightarrow \text{LARENEG}$$

Final Answer: $\boxed{\text{LARENEG}}$

Answer: (A)

Go Back to Question 20

Q21.

Solution

Concept: This is a coding-decoding problem. We need to identify the pattern of letter transformation from the given example and apply it to the new word.

Given Code: BRIDGE is coded as CSJEHF.

Analysis of the Code: Let's compare the letters of BRIDGE with CSJEHF position by position:
B → C (+1)
R → S (+1)
I → J (+1)
D → E (+1)
G → H (+1)
E → F (+1)

Each letter in "BRIDGE" is replaced by the very next letter in the English alphabet. This is a +1 shift for each letter.

Applying the Code to "PLANET": Now, we apply the same +1 shift to each letter of the word "PLANET":
P (+1) = Q
L (+1) = M
A (+1) = B
N (+1) = O
E (+1) = F
T (+1) = U

Combining these shifted letters, we get the code for "PLANET" as QMBOFU.

Let's check the options:
A. QMBOFU
B. RMBPGU
C. PMBOFU
D. QMBPGU

Our derived code matches option A.

Final Answer: QMBOFU

Answer: (A)

Go Back to Question 21

Q22.

Solution

Concept: This is a number series problem. We need to identify the pattern or rule that generates the terms in the sequence and use it to find the next term.

Series: 8, 17, 35, 71, 143, ?

Analysis of the Series: Let's examine the relationship between consecutive terms.
Consider the operation: (previous term x 2) + a number.
8 x 2 + 1 = 16 + 1 = 17
17 x 2 + 1 = 34 + 1 = 35
35 x 2 + 1 = 70 + 1 = 71
71 x 2 + 1 = 142 + 1 = 143

The pattern is: current term = (previous term x 2) + 1.
To find the next term, we apply this rule to the last term (143):
Next term = (143 x 2) + 1
Next term = 286 + 1
Next term = 287.

Alternatively, we can look at the differences between consecutive terms:
17 - 8 = 9
35 - 17 = 18
71 - 35 = 36
143 - 71 = 72
The differences are 9, 18, 36, 72. This is a geometric progression where each term is doubled (9 x 2 = 18, 18 x 2 = 36, 36 x 2 = 72).
The next difference will be 72 x 2 = 144.
So, the next term is 143 + 144 = 287.

Let's check the options:
A. 191
B. 255
C. 287
D. 289

The calculated next term is 287, which matches option C.

Final Answer: 287

Answer: (C)

Go Back to Question 22

Q23.

Solution

Concept: This is a letter series problem. We need to find the pattern in the sequence of letters and determine the next letter. The pattern often involves the position of letters in the alphabet and the difference between their positions.

Series: F, L, R, X, D, ?

Analysis of the Series: First, convert each letter into its alphabetical position:

$$F = 6, \quad L = 12, \quad R = 18, \quad X = 24, \quad D = 4$$

Now observe the pattern in the positions:

$$12 - 6 = 6$$

$$18 - 12 = 6$$

$$24 - 18 = 6$$

So, each letter is obtained by adding 6 to the previous one.
Next, check the transition from X to D:

$$24 + 6 = 30$$

Since the alphabet has only 26 letters, we wrap around:

$$30 - 26 = 4$$

The 4th letter is D, which confirms the pattern.
Now continue the same rule:

$$D = 4$$

$$4 + 6 = 10$$

The 10th letter of the alphabet is J.
So the series follows a constant increment of +6:

$$F \rightarrow L \rightarrow R \rightarrow X \rightarrow D \rightarrow J$$

Final Answer: J

Answer: (C)

Go Back to Question 23

Q24.

Solution

Concept: This is a number series problem. We need to find the pattern governing the sequence and use it to predict the next term.

Series: 5, 16, 49, 148, 445, ?

Analysis of the Series: Let's examine the relationship between consecutive terms. Consider the operation: (previous term x 3) + a number.
5 x 3 + 1 = 15 + 1 = 16
16 x 3 + 1 = 48 + 1 = 49
49 x 3 + 1 = 147 + 1 = 148
148 x 3 + 1 = 444 + 1 = 445

The pattern is: current term = (previous term x 3) + 1.
To find the next term, we apply this rule to the last term (445):
Next term = (445 x 3) + 1
Next term = 1335 + 1
Next term = 1336.

Let's check the options:
A. 1098
B. 1214
C. 1336
D. 1450

The calculated next term is 1336, which matches option C.

Final Answer: 1336

Answer: (C)

Go Back to Question 24

Q25.

Solution

Concept: This question asks us to identify the odd one out from a given list of geometric shapes. We need to find a common characteristic shared by most items and identify the one that does not fit this characteristic.

Options:
A. Triangle
B. Square
C. Circle
D. Pentagon

Analysis:
A. Triangle: A polygon with 3 sides. It is a 2-dimensional shape.
B. Square: A polygon with 4 equal sides and 4 right angles. It is a 2-dimensional shape.
C. Circle: A set of points equidistant from a center. It is a 2-dimensional shape, but it is not a polygon because its boundary is curved, not made of straight line segments.
D. Pentagon: A polygon with 5 sides. It is a 2-dimensional shape.

The options A, B, and D are all polygons, which are 2-dimensional shapes formed by straight line segments. A Circle is a 2-dimensional shape but is not a polygon.

Therefore, Circle is the odd one out.

Final Answer: Circle

Answer: (C)

Go Back to Question 25

Q26.

Solution

Concept: This question asks us to identify the odd one out from a list of materials. We need to find a category or property that unites most of the items, and then find the item that doesn't belong to that category.

Options: A. Aluminium
B. Copper
C. Silver
D. Wood

Analysis: Let's examine the nature of each item:
A. Aluminium: A metal. It is a chemical element (Al). Metals generally conduct electricity and heat well.
B. Copper: A metal. It is a chemical element (Cu). Metals are generally good conductors of electricity and heat.
C. Silver: A precious metal. It is a chemical element (Ag). Metals are generally good conductors of electricity and heat.

D. Wood: A porous and fibrous structural tissue found in the stems and roots of trees and other woody plants. It is an organic material, primarily composed of cellulose. Wood is generally an electrical and thermal insulator, not a conductor.

Aluminium, Copper, and Silver are all metals. Metals share common properties like conductivity, malleability, and ductility. Wood is an organic material and does not share these metallic properties.

Therefore, Wood is the odd one out.

Final Answer: Wood

Answer: (D)

Go Back to Question 26

Q27.

Solution

Concept: This problem involves calculating the displacement of a person from their starting point after a series of movements in different directions. We can use the Pythagorean theorem or visualize the path.

Movement Steps:

1. The person walks 15m North.
2. Then walks 36m East.
3. Then walks 15m South.

Visualization and Calculation:

The movement North and the movement South are in opposite directions.

- The person moves 15m North.
- Then moves 15m South.

These two movements cancel each other out in the North-South direction. The person ends up at the same North-South level as they started.

The only remaining displacement is the 36m East movement.

Therefore, the person is 36m East of their starting point.

The distance from the starting point is the magnitude of the net displacement. Since the North-South movements cancelled out, the net displacement is purely in the East direction.

Distance = 36m.

Alternatively, using coordinates:

Start at (0,0).

1. 15m North: Position (0, 15).
2. 36m East: Position (0 + 36, 15) = (36, 15).
3. 15m South: Position (36, 15 - 15) = (36, 0).

The final position of the person is (36, 0).

The starting point was (0, 0).

The distance between the starting point (0, 0) and the final point (36, 0) is:

Distance = $\sqrt{(36-0)^2 + (0-0)^2} = \sqrt{36^2} = 36$ meters.

Final Answer: 36m

Answer: (B)

Go Back to Question 27

Q28.

Solution

Concept: This problem involves calculating the final direction a person is facing after a series of turns. We can use a compass rose or visualize the directions and angles.

Solution:

Starting Direction: The man starts facing West.

Step 1: Turn 135° **clockwise.**

Using directions:

- 90° clockwise from West gives North.
- Another 45° clockwise gives North-East.

So, after the first turn, he faces:

North-East

Step 2: Turn 45° **anticlockwise.**

Turning 45° anticlockwise from North-East brings him to:

North

Verification using degrees:

Taking North as 0°:

$$\text{West} = 270^\circ$$

After turning 135° clockwise:

$$270^\circ + 135^\circ = 405^\circ$$

$$405^\circ - 360^\circ = 45^\circ$$

45° represents North-East.

Now turning 45° anticlockwise:

$$45^\circ - 45^\circ = 0^\circ$$

$$0^\circ = \text{North}$$

Final Answer: North

Answer: (A)

Go Back to Question 28

Q29.

Solution

Concept: This question assesses understanding of geometric definitions and logical reasoning. We need to evaluate both the assertion and the reason, and their relationship.

Assertion (A): Every square is a rhombus.
- A rhombus is defined as a quadrilateral with four equal sides.
- A square is a quadrilateral with four equal sides and four right angles.
- Since a square has four equal sides, it meets the definition of a rhombus. Assertion (A) is true.

Reason (R): All sides of a square are equal.
- This statement correctly describes a property of a square. This is the defining characteristic of a rhombus.

Relationship between A and R:
The reason provided (All sides of a square are equal) is the defining property of a rhombus. Since a square possesses this property, it is classified as a rhombus. Therefore, the reason directly explains why the assertion is true.

Final Answer: Both A and R are true, and R explains A

Answer: (A)

Go Back to Question 29

Q30.

Solution

Concept: This is a syllogism problem involving categorical propositions. We need to analyze the given statements and determine which conclusions logically follow.

Statements:

1. Some lawyers are professors. (Some L are P)
2. All professors are educated. (All P are Ed)

Analysis of Conclusion I: Some lawyers are educated.

From statement 1, we know that there is an overlap between the set of lawyers and the set of professors. Let's call this overlapping group 'X'. So, some lawyers are professors, and these lawyers are part of group X. From statement 2, all professors are educated. This means that everyone in the set of professors is also in the set of educated people.

Since group X consists of professors (and also lawyers), and all professors are educated, it follows that the members of group X are also educated.

Therefore, the lawyers who are part of group X (who are professors) are also educated. This means some lawyers are educated. Conclusion I follows.

Analysis of Conclusion II: All educated people are managers.

Statement 2 says "All professors are educated." This means the set of professors is a subset of the set of educated people. However, it does not state that the set of educated people is a subset of the set of professors.

It is possible for there to be educated people who are not professors. For example, educated doctors, engineers, artists, etc., are educated but not necessarily professors. The statement "All professors are educated" does not imply "All educated people are professors." Conclusion II does not follow.

Final Answer: Only I follows

Answer: (A)

Go Back to Question 30

Answer Key

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