

Reasoning Topics

1. Logical Reasoning Questions

1. **Number Series** – Find the missing number in a sequence.
 2. **Alphabet Series** – Identify the missing letter in a pattern.
 3. **Coding-Decoding** – Convert words or numbers based on a pattern.
 4. **Blood Relations** – Find the relationship between family members.
 5. **Direction Sense** – Determine the final position after movements.
 6. **Seating Arrangement** – Linear or circular seating patterns.
 7. **Syllogisms** – Logical deductions based on given statements.
 8. **Statement & Assumption** – Identify valid assumptions from a statement.
 9. **Statement & Conclusion** – Find conclusions that logically follow.
 10. **Cause & Effect** – Identify relationships between two events.
-

2. Analytical Reasoning Questions

11. **Puzzles** – Logical problem-solving scenarios.
 12. **Data Sufficiency** – Determine if given information is enough to answer a question.
 13. **Decision Making** – Choose the best option based on a scenario.
 14. **Statement & Arguments** – Identify strong and weak arguments.
 15. **Ranking & Order** – Arranging people/things based on given conditions.
 16. **Cube & Dice Problems** – Identify the hidden faces or solve 3D problems.
 17. **Clock & Calendar Problems** – Solve time- and date-based questions.
 18. **Mathematical Operations** – Solve problems using artificial mathematical operations.
 19. **Venn Diagrams** – Identify logical relationships using diagrams.
 20. **Pattern Completion** – Find the missing part in a logical pattern.
-

3. Verbal Reasoning Questions

21. **Analogies** – Find relationships between words or concepts.
22. **Odd One Out** – Identify the item that doesn't fit in a group.
23. **Logical Connectives** – Solve problems involving AND, OR, IF-THEN conditions.
24. **Sitting Arrangements** – People sitting in a row, circle, or square arrangement.
25. **Inference-Based Questions** – Identify conclusions based on given facts.
26. **Passage-Based Reasoning** – Answer questions based on a passage.
27. **Letter & Symbol Series** – Find patterns in letters or symbols.
28. **Word Formation** – Create words using given letters.
29. **Cause & Effect Relationships** – Identify if one statement is the cause of another.
30. **Syllogism-Based Problems** – Answer using logical deductions from given statements.

4. Non-Verbal Reasoning Questions

- 31. **Mirror & Water Images** – Identify how an object looks in a mirror or water.
 - 32. **Paper Folding & Cutting** – Predict how paper will look when folded/cut.
 - 33. **Figure Series Completion** – Find the missing figure in a sequence.
 - 34. **Figure Analogies** – Identify relationships between given figures.
 - 35. **Embedded Figures** – Find a hidden figure in a complex design.
 - 36. **Pattern Matching** – Identify patterns or missing parts.
 - 37. **Cubes & Dice Problems** – Solve questions based on rolled or cut cubes/dice.
 - 38. **Counting Figures** – Count specific shapes in a given diagram.
 - 39. **Shape Formation & Construction** – Identify how different parts make up a whole.
 - 40. **Paper Cutting & Folding** – Predict the shape after folding and cutting a paper.
-

5. Quantitative Reasoning Questions

- 41. **Age Problems** – Solve problems involving age relations.
 - 42. **Profit & Loss** – Calculate gains or losses in transactions.
 - 43. **Percentage Problems** – Solve questions based on percentage calculations.
 - 44. **Ratio & Proportion** – Solve problems based on comparative relationships.
 - 45. **Time & Work** – Calculate the time taken for a task.
 - 46. **Speed, Distance & Time** – Solve travel-related problems.
 - 47. **Probability & Permutations** – Solve questions on likelihood and arrangements.
 - 48. **Simple & Compound Interest** – Calculate interests over time.
 - 49. **Boats & Streams** – Solve problems involving upstream/downstream movement.
 - 50. **Pipes & Cisterns** – Find how fast a tank fills or empties.
-

6. Critical Thinking & Decision-Making Questions

- 51. **Cause & Effect Analysis** – Determine the relationship between two statements.
- 52. **Strengthening & Weakening Arguments** – Identify which statements strengthen or weaken a given argument.
- 53. **Course of Action** – Choose the best action based on a given situation.
- 54. **Assumption-Based Questions** – Identify underlying assumptions in statements.
- 55. **Evaluating Arguments** – Judge the validity of given arguments.

Sample Questions

1. Number Series – Find the missing number in a sequence

Q1: 2, 6, 12, 20, 30, ?

Solution:

Pattern: $n(n+1)n(n+1)n(n+1)$

- $1(2)=21(2) = 21(2)=2$
- $2(3)=62(3) = 62(3)=6$
- $3(4)=123(4) = 123(4)=12$
- $4(5)=204(5) = 204(5)=20$
- $5(6)=305(6) = 305(6)=30$
- $6(7)=426(7) = 426(7)=42$

Answer: 42

Q2: 3, 9, 27, 81, ?

Solution:

Each number is multiplied by 3.

$$81 \times 3 = 243 \quad 81 \times 3 = 243 \quad 81 \times 3 = 243$$

Answer: 243

Q3: 1, 4, 9, 16, 25, ?

Solution:

Square of consecutive numbers: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100

Next: $62=366^2 = 3662=36$

Answer: 36

2. Alphabet Series – Identify the missing letter in a pattern

Q4: A, C, F, J, O, ?

Solution:

Pattern: +2, +3, +4, +5, +6, +2, +3, +4, +5, +6, +2, +3, +4, +5, +6

- A → C (+2)
- C → F (+3)
- F → J (+4)
- J → O (+5)

- $O \rightarrow ? (+6) \rightarrow U$

Answer: U

Q5: Z, X, U, Q, ?

Solution:

Pattern: -2, -3, -4, -5, -2, -3, -4, -5

- $Z \rightarrow X (-2)$
- $X \rightarrow U (-3)$
- $U \rightarrow Q (-4)$
- $Q \rightarrow ? (-5) \rightarrow L$

Answer: L

Q6: B, E, H, K, ?

Solution:

Pattern: +3, +3, +3, +3, +3, +3, +3, +3

- $B \rightarrow E (+3)$
- $E \rightarrow H (+3)$
- $H \rightarrow K (+3)$
- $K \rightarrow ? (+3) \rightarrow N$

Answer: N

3. Coding-Decoding – Convert words or numbers based on a pattern

Q7: If APPLE is coded as ELPPA, how is TABLE coded?

Solution: Reverse the word.

Answer: ELBAT

Q8: If PENCIL is coded as QFODJM, how is ERASER coded?

Solution: Shift each letter +1.

Answer: FSBTFS

Q9: If DOG = 4157, CAT = 31420, then what is BAT?

Solution: Assign values (A=1, B=2, C=3, etc.), sum and reverse.

Answer: 21420

4. Blood Relations – Find the relationship between family members

Q10: Pointing to a woman, Rahul said, "She is the only daughter of my father's only daughter." How is the woman related to Rahul?

Solution: Rahul's **father's only daughter** is his sister.

Answer: Niece

Q11: If A is the brother of B, and B is the mother of C, how is A related to C?

Solution: A is C's maternal **uncle**.

Answer: Uncle

Q12: Pointing to a man, a woman says, "His mother is the only daughter of my mother." How is the woman related to the man?

Solution: The woman is the **man's mother**.

Answer: Mother

5. Direction Sense – Determine the final position after movements

Q13: A person walks 5m North, then 3m East, then 5m South. How far is he from the starting point?

Solution: 3m East

Q14: A starts facing North, turns 90° right, 180° left, then 270° right. Where is he facing?

Solution: South

Q15: A man moves 10m left, 5m right, then 20m back. What is the displacement?

Solution: 15m backward

6. Seating Arrangement – Linear or circular seating patterns

Q16: A, B, C, D, E are seated in a row. B is to the left of D, C is at the extreme left, and A is to the right of C. Who is in the middle?

Solution: B

Q17: Six friends sit in a circle. A is between B and C, D is opposite A, E is next to D. Who is next to B?

Solution: C

Q18: Five people sit in a row. If X is to the left of Y and right of Z, and A is at the extreme left, who is in the middle?

7. Syllogisms – Logical deductions based on given statements

Q19:

- **Statement:** All cats are animals. Some animals are dogs.
- **Conclusion:** (i) Some cats are dogs. (ii) Some animals are cats.
Solution: Only (ii) follows.

Q20:

- **Statement:** No apple is a banana. All bananas are fruits.
- **Conclusion:** (i) No apple is a fruit. (ii) Some fruits are bananas.
Solution: Only (ii) follows.

Q21:

- **Statement:** Some pens are books. All books are papers.
 - **Conclusion:** (i) Some pens are papers. (ii) No pen is a paper.
Solution: Only (i) follows.
-

8. Statement & Assumption – Identify valid assumptions from a statement

Q22:

- **Statement:** "Buy our shoes to improve your running speed."
- **Assumption:** (i) Shoes impact running. (ii) Everyone wears shoes.
Solution: Only (i) follows.

Q23:

- **Statement:** "We need rain to avoid drought."
- **Assumption:** (i) Drought is caused by no rain. (ii) Rainfall is predictable.
Solution: Only (i) follows.

Q24:

- **Statement:** "Government should invest in education."

- **Assumption:** (i) Education is important. (ii) Government has money.
Solution: Only (i) follows.
-

9. Statement & Conclusion – Find conclusions that logically follow

Q25:

- **Statement:** "Exercise is good for health."
- **Conclusion:** (i) All healthy people exercise. (ii) Exercise improves health.
Solution: Only (ii) follows.

Q26:

- **Statement:** "The price of petrol is increasing."
- **Conclusion:** (i) Demand for petrol is high. (ii) People will use less petrol.
Solution: Only (ii) follows.

Q27:

- **Statement:** "Reading books improves knowledge."
 - **Conclusion:** (i) All knowledgeable people read books. (ii) Reading books helps learning.
Solution: Only (ii) follows.
-

10. Cause & Effect – Identify relationships between events

Q28:

- **Cause:** Heavy rain.
- **Effect:** Floods in cities.
Solution: Cause leads to effect.

Q29:

- **Cause:** Increased online shopping.
- **Effect:** More digital payments.
Solution: Cause leads to effect.

Q30:

- **Cause:** A company closed.
- **Effect:** Employees lost jobs.
Solution: Cause leads to effect.

1. Puzzles – Logical problem-solving scenarios

Q1: A, B, C, D, and E are sitting in a row.

- B is to the right of A but left of C.
- D is to the right of C.
- E is to the left of A.

Who is sitting in the middle?

Solution: Arranging the sequence: **E - A - B - C - D**

Answer: B

Q2: A is older than B, B is older than C, and D is younger than C. Who is the youngest?

Solution: D is younger than C, and C is younger than B. So, **D is the youngest.**

Answer: D

Q3: A man has 5 daughters. Each daughter has 1 brother. How many children does he have?

Solution: The five daughters share **one** brother. Total = **6 children.**

Answer: 6

2. Data Sufficiency – Determine if given information is enough

Q4: What is the value of X?

1. X is an even number.
2. X is a prime number.

Solution: Prime numbers are **2, 3, 5, 7, etc..** The only even prime number is **2.**

Answer: Both statements together are sufficient.

Q5: Is A taller than B?

1. A is taller than C.
2. C is shorter than B.

Solution: If $A > C$ and $C < B$, we cannot conclude $A > B$.

Answer: Insufficient.

Q6: What is the two-digit number?

1. The sum of digits is 7.
2. The number is a multiple of 5.

Solution: Possible numbers: 16, 25, 34, 43, 52, 61, 70. Only **25** satisfies both conditions.
Answer: Sufficient.

3. Decision Making – Choose the best option based on a scenario

Q7: A company wants to hire someone who is creative, analytical, and has leadership skills. Which candidate is the best?

1. A is creative and analytical but lacks leadership.
2. B has leadership and analytical skills but is not creative.
3. C has all three skills.

Solution: C meets all criteria.
Answer: C

Q8: You see a person collapse in a mall. What is your first action?

1. Call an ambulance.
2. Check if the person is breathing.
3. Try to wake them up.

Solution: Checking breathing (Option 2) is first.
Answer: 2

Q9: You find a wallet with an ID. What should you do?

1. Take the money and leave it.
2. Hand it to the mall security.
3. Keep it with you.

Solution: Returning it to security (Option 2) is the best choice.
Answer: 2

4. Statement & Arguments – Identify strong and weak arguments

Q10: Should plastic bags be banned?

1. Yes, they harm the environment.
2. No, they are convenient for shopping.

Solution: Only Argument 1 is strong.

Answer: 1

Q11: Should school uniforms be mandatory?

1. Yes, it promotes discipline.
2. No, students should wear what they like.

Solution: Only Argument 1 is strong.

Answer: 1

Q12: Should exams be abolished?

1. Yes, they create stress.
2. No, they test knowledge and skills.

Solution: Only Argument 2 is strong.

Answer: 2

5. Ranking & Order – Arranging people/things

Q13: A is taller than B, B is taller than C. Who is the tallest?

Answer: A

Q14: In a race, A finishes before B, but after C. Who is in second place?

Solution: $C > A > B$, so A is second.

Answer: A

Q15: Five people stand in a queue. D is behind C but ahead of B. Who is at the front?

Solution: $D > C > B$, missing names required.

Answer: Cannot be determined.

6. Cube & Dice Problems – Identify hidden faces or 3D problems

Q16: If opposite faces of a die sum to 7, what is opposite 3?

Solution: Opposites: (1,6), (2,5), (3,4).

Answer: 4

Q17: A cube is painted on all sides and cut into 64 smaller cubes. How many have 3 faces painted?

Solution: 8 corner cubes.

Answer: 8

Q18: A dice shows 3,5,6. What is opposite 5?

Solution: Check pairs. **Opposite of 5 is 2.**

Answer: 2

7. Clock & Calendar Problems – Time and date calculations

Q19: If a clock shows 3:15, what is the angle between the hands?

Solution: 7.5°

Q20: If today is Monday, what day will it be in 100 days?

Solution: $100 \div 7 = 14 \text{ weeks} + 2 \text{ days}$. Answer: Wednesday

Q21: If Jan 1, 2025, is a Wednesday, what is Dec 31, 2025?

Solution: Wednesday + 364 days = Thursday

Answer: Thursday

8. Mathematical Operations – Solve problems using artificial rules

Q22: If $5 \oplus 3 = 16$ and $4 \oplus 2 = 10$, what is $6 \oplus 3$?

Solution: $a \oplus b = a^2 - ba$ $\oplus b = a^2 - ba \oplus b = a^2 - b$

$6 \oplus 3 = 6^2 - 3 = 36 - 3 = 33$

Answer: 33

Q23: If $2 @ 3 = 8$ and $4 @ 2 = 20$, find $5 @ 3$.

Solution: $a @ b = a^2 + b^2$
 $a @ b = a^2 + b^2$

$$5 @ 3 = 5^2 + 3^2 = 25 + 9 = 34$$

Answer: 34

Q24: If $A + B = AB + 2$, what is $3 + 4$?

$$3 + 4 = (3 \times 4) + 2 = 14$$

Answer: 14

9. Venn Diagrams – Identify logical relationships

Q25: Which set represents dogs, animals, and cats?

Solution: Animals (biggest), dogs and cats inside.

Q26: Which Venn diagram represents fruits, apples, and bananas?

Solution: Fruits (biggest), apples and bananas inside.

Q27: If some pens are blue, and all pens are inked, what is true?

Solution: Some blue objects are inked.

10. Pattern Completion – Find the missing part

Q28: What comes next? $\triangle, \bigcirc, \triangle, \bigcirc, ?$

Answer: \triangle

Q29: If $1 = A$, $2 = B$, $3 = C$, what is 5 ?

Answer: E

Q30: 1, 4, 9, 16, ?

$$\text{Solution: } 5^2 = 25$$

Answer: 25

1. Analogies – Find relationships between words or concepts

Q1: Bird : Nest :: Bee : ?

Solution: A **bird** lives in a **nest**, and a **bee** lives in a **hive**.

Answer: **Hive**

Q2: Pen : Write :: Knife : ?

Solution: A **pen** is used to **write**, and a **knife** is used to **cut**.

Answer: **Cut**

Q3: Doctor : Hospital :: Soldier : ?

Solution: A **doctor** works in a **hospital**, and a **soldier** works in a **barracks**.

Answer: **Barracks**

2. Odd One Out – Identify the item that doesn't fit in a group

Q4: Apple, Banana, Mango, Carrot

Solution: **Carrot** is a vegetable, others are fruits.

Answer: **Carrot**

Q5: Square, Triangle, Rectangle, Sphere

Solution: **Sphere** is 3D, others are 2D shapes.

Answer: **Sphere**

Q6: Mercury, Venus, Earth, Moon

Solution: **Moon** is not a planet, others are.

Answer: **Moon**

3. Logical Connectives – Solve problems involving AND, OR, IF-THEN conditions

Q7: If it rains, then the ground is wet. The ground is not wet. What can we conclude?

Solution: If the ground is not wet, then **it didn't rain**.

Answer: **It didn't rain.**

Q8: Either A or B will win the race. B won. What can we conclude?

Solution: Since B won, **A didn't win**.

Answer: **A didn't win.**

Q9: If a student studies, they pass the exam. A student did not pass. What does this imply?

Solution: The student didn't study.

Answer: The student didn't study.

4. Sitting Arrangements – People sitting in a row, circle, or square

Q10: A, B, C, and D sit in a row. C is between A and B. Who is sitting at the end?

Solution: Arranging: A - C - B - D. Ends: A and D.

Answer: A and D

Q11: Five people sit in a circle. P is to the left of Q, Q is to the left of R, and S is to the right of R. Who is opposite Q?

Solution: S sits opposite Q.

Answer: S

Q12: Six people sit in a row. X is third from the left, Y is second from the right. Who is in the middle?

Solution: Arrangement: 1 - 2 - X - 4 - 5 - Y. Middle: 4.

Answer: Person in position 4.

5. Inference-Based Questions – Identify conclusions based on facts

Q13: All cats are mammals. Some mammals are dogs. What can we infer?

Solution: Some mammals are cats, but not all mammals are cats.

Answer: Some mammals are cats.

Q14: All apples are fruits. Some fruits are yellow. What can we infer?

Solution: Some fruits may not be apples.

Answer: Some fruits are not apples.

Q15: If John is taller than Mike, and Mike is taller than Sam, who is the tallest?

Solution: John is the tallest.

Answer: John

6. Passage-Based Reasoning – Answer questions based on a passage

Passage: A farmer grows wheat and rice. Wheat takes three months to harvest, while rice takes four months. The farmer can plant either but not both.

Q16: What can we infer about the farmer's decision?

Answer: The farmer must choose one crop based on time availability.

Q17: If wheat prices rise, what should the farmer do?

Answer: The farmer should grow wheat to maximize profit.

Q18: If rice needs more water, what can we infer about its growth?

Answer: The farmer should grow rice in a rainy season.

7. Letter & Symbol Series – Find patterns in letters or symbols

Q19: A, C, E, G, ?

Solution: The pattern increases by +2 ($A+2 = C$, $C+2 = E$, $E+2 = G$).

Answer: I

Q20: 2, 4, 8, 16, ?

Solution: Multiply by 2 each time.

Answer: 32

Q21: Z, X, V, T, ?

Solution: Reverse pattern with -2 each time.

Answer: R

8. Word Formation – Create words using given letters

Q22: Can you form a word using E, T, R, A, C?

Answer: TRACE, REACT, CRATE.

Q23: Rearrange L, A, P, T to make a word.

Answer: PLAT, PALT.

Q24: From B, E, T, T, E, R, make a new word.

Answer: BETTER.

9. Cause & Effect Relationships – Identify if one statement causes another

Q25: Statement 1: It rained heavily.

Statement 2: The streets are flooded.

Is Statement 1 the cause of Statement 2?

Answer: Yes, heavy rain caused flooding.

Q26: Statement 1: The power went out.

Statement 2: The students did not complete their homework.

Is there a cause-effect relationship?

Answer: No, power cuts don't always prevent homework.

Q27: Statement 1: The government increased taxes.

Statement 2: Prices of goods went up.

Is Statement 1 the cause of Statement 2?

Answer: Yes, tax hikes can raise prices.

10. Syllogism-Based Problems – Logical deductions

Q28: All birds have wings. All wings have feathers. What can we conclude?

Answer: All birds have feathers.

Q29: Some cats are black. All black things are beautiful. What can we conclude?

Answer: Some cats are beautiful.

Q30: No fish can fly. Some animals can fly. What can we conclude?

Answer: Some animals are not fish.

1. Mirror & Water Images – Identify how an object looks in a mirror or water

Q1: If the word LIFT is placed in front of a mirror, how will it appear?

Solution: Mirror images reverse left to right. **LIFT** → **TIFL** in the mirror.

Answer: **TIFL**

Q2: A clock shows 4:30. What will be its mirror image?

Solution: Subtract the given time from 12:00. **12:00 - 4:30 = 7:30.**

Answer: **7:30**

Q3: How will the number 362 appear in a mirror?

Solution: Numbers are flipped left-right: **362** → **263.**

Answer: **263**

2. Paper Folding & Cutting – Predict how paper will look when folded/cut

Q4: A square paper is folded once diagonally and a small hole is punched at the center. How will it look when unfolded?

Solution: The hole will appear in four symmetric positions.

Answer: Four holes symmetrically placed.

Q5: A rectangular paper is folded in half and a triangular cut is made at the edge. What shape appears when unfolded?

Solution: Two triangular cuts will appear symmetrically.

Answer: A diamond-shaped cutout.

Q6: A paper is folded twice along its vertical axis and then a small circle is cut at one corner. What will be the result when unfolded?

Solution: The circle will appear **four times symmetrically.**

Answer: Four circles symmetrically placed.

3. Figure Series Completion – Find the missing figure in a sequence

Q7: A pattern shows a circle, then a circle with a dot inside, then a circle with two dots inside. What comes next?

Solution: The pattern increases by **one dot per step.**

Answer: A circle with three dots inside.

Q8: A square rotates 45° in each step. What will be the 4th shape?

Solution: The square keeps rotating 45° in each step.

Answer: The square will be rotated 135° from its original position.

Q9: A triangle turns upside down, then comes back to its original position. What will be the next step?

Solution: The triangle flips **alternately**.

Answer: It will be upside down again.

4. Figure Analogies – Identify relationships between given figures

Q10: A square is related to a cube. A circle is related to?

Solution: A **circle** becomes a **sphere** in 3D.

Answer: Sphere

Q11: A triangle is to a pyramid as a rectangle is to?

Solution: A **rectangle** becomes a **cuboid** in 3D.

Answer: Cuboid

Q12: A filled circle is to an empty circle as a filled square is to?

Solution: A **filled** shape changes to an **empty** shape.

Answer: An empty square

5. Embedded Figures – Find a hidden figure in a complex design

Q13: Can you find a triangle hidden inside a star?

Solution: **Yes**, triangles can be found inside the **star's edges**.

Answer: Yes, multiple triangles exist inside the star.

Q14: If a complex figure is given, can you find a rectangle inside it?

Solution: Look for four straight lines forming a **rectangle** within the figure.

Answer: Yes, a rectangle is embedded.

Q15: A shape contains many lines. Can you find a diamond shape inside?

Solution: Check for **slanted square-like figures** within the complex design.

Answer: Yes, a diamond is hidden.

6. Pattern Matching – Identify patterns or missing parts

Q16: A pattern shows a dot moving in a clockwise direction. Where will it be next?

Solution: Follow the **clockwise rotation**.

Answer: The dot moves to the next position in sequence.

Q17: A shape alternates between black and white. What will be the next color?

Solution: The pattern follows a **black-white** alternation.

Answer: The next shape will be **black**.

Q18: A figure is missing a part in its bottom-left corner. What should complete it?

Solution: The missing part should be **symmetrical** to the other side.

Answer: A bottom-left shape mirroring the top-right.

7. Cubes & Dice Problems – Solve questions based on rolled or cut cubes/dice

Q19: A cube is painted on all sides and then cut into 8 smaller cubes. How many of them will have three painted faces?

Solution: Only **corners** have three painted faces.

Answer: 8 corner cubes.

Q20: A dice shows 5 on top and 3 at the front. What number is at the bottom if opposite faces add up to 7?

Solution: Opposite of **5** is **2** ($5+2=7$).

Answer: 2

Q21: A cube has numbers 1, 2, 3, 4, 5, and 6. If 1 is opposite to 6 and 3 is opposite to 4, what is opposite to 2?

Solution: The only remaining number is **5**.

Answer: 5

8. Counting Figures – Count specific shapes in a given diagram

Q22: How many triangles are in a star-shaped figure?

Solution: Count all **small and big triangles**.

Answer: More than 10 triangles.

Q23: A square is divided into 4 equal parts. How many total squares exist?

Solution: 1 big square + 4 small squares.

Answer: 5 squares.

Q24: A hexagon is divided into triangles. How many total triangles are there?

Solution: Count all **small, medium, and large triangles**.

Answer: 6 or more.

9. Shape Formation & Construction – Identify how different parts make up a whole

Q25: If four triangles are combined, what shape can they form?

Solution: Four triangles can form a **bigger triangle** or a **square**.

Answer: Triangle or Square.

Q26: Can two rectangles form a square?

Solution: **Yes**, two equal rectangles can combine to make a square.

Answer: Yes, if arranged correctly.

Q27: If you cut a cylinder vertically, what shape appears?

Solution: A **rectangle** appears in the cross-section.

Answer: Rectangle.

10. Paper Cutting & Folding – Predict the shape after folding and cutting

Q28: If a circular paper is folded and a star is cut, what will appear when unfolded?

Solution: A **symmetrical star pattern**.

Answer: A star-shaped pattern.

Q29: A square paper is folded twice and a triangle is cut. What will be the result?

Solution: Four triangular cutouts when unfolded.

Answer: Four identical triangles.

Q30: A rectangular paper is folded into four and a small circle is cut. What pattern appears?

Solution: Four circular holes in a symmetric pattern.

Answer: Four circles.

1. Age Problems – Solve problems involving age relations

Q1: The present age of a father is three times that of his son. After 8 years, the father's age will be twice that of his son. What is the son's present age?

Solution:

Let the son's age be x .

Father's present age = $3x$.

After 8 years:

$$3x+8=2(x+8) \quad 3x+8=2(x+8) \quad 3x+8=2(x+8)$$

Solving:

$$3x+8=2x+16 \quad 3x+8=2x+16 \quad 3x+8=2x+16 \quad x=8 \quad x=8 \quad x=8$$

Answer: Son's age is 8 years.

Q2: The sum of the ages of a father and son is 60 years. If the father is four times the son's age, what is the son's age?

Solution:

Let son's age be x .

Father's age = $4x$.

$$x+4x=60 \quad x+4x=60 \quad x+4x=60 \quad 5x=60 \Rightarrow x=12 \quad 5x=60 \Rightarrow x=12 \quad 5x=60 \Rightarrow x=12$$

Answer: Son is 12 years old.

Q3: A mother is 30 years older than her daughter. In 6 years, the mother's age will be twice that of her daughter. Find the daughter's present age.

Solution:

Let daughter's age be x .

Mother's age = $x + 30$.

After 6 years:

$$(x+30)+6=2(x+6) \quad (x+30) + 6 = 2(x+6) \quad (x+30)+6=2(x+6) \quad x+36=2x+12 \quad x+36=2x+12 \quad x=24x=24x=24$$

Answer: Daughter is **24 years old**.

2. Profit & Loss – Calculate gains or losses in transactions

Q4: A product is bought for ₹500 and sold for ₹700. What is the profit percentage?

Solution:

$$\begin{aligned} \text{Profit} &= \text{Selling Price} - \text{Cost Price} = 700 - 500 = 200 \\ \text{Profit} &= \text{Selling Price} - \text{Cost Price} = 700 - 500 = 200 \\ \left(\frac{200}{500} \times 100\right) &= 40\% \end{aligned}$$

Answer: **40% profit**

Q5: A shopkeeper sells an item at 10% loss for ₹900. What was the cost price?

Solution:

$$\text{Cost Price} = \frac{\text{Selling Price}}{(1 - \text{Loss}\%)} = \frac{900}{0.9} = 1000$$

Answer: ₹1000

Q6: A mobile is bought for ₹6000 and sold at 15% profit. Find the selling price.

Solution:

$$\begin{aligned} \text{Selling Price} &= \text{Cost Price} \times \left(1 + \frac{\text{Profit}\%}{100}\right) = 6000 \\ &\times 1.15 = 6900 \end{aligned}$$

Answer: ₹6900

3. Percentage Problems – Solve questions based on percentage calculations

Q7: 40% of a number is 80. Find the number.

Solution:

$$\text{Number} = \frac{80 \times 100}{40} = 200 \quad \text{Number} = \frac{40 \times 100}{80} = 50$$

Answer: 200

Q8: The price of a product increased from ₹500 to ₹600. What is the percentage increase?

Solution:

$$\text{Increase\%} = \left(\frac{600 - 500}{500} \times 100 \right) = 20\%$$

Answer: 20% increase

Q9: A student scored 72 out of 80 in a test. What is the percentage score?

Solution:

$$\text{Percentage} = \left(\frac{72}{80} \times 100 \right) = 90\% \quad \text{Percentage} = \left(\frac{80}{72} \times 100 \right) = 111.11\%$$

Answer: 90%

4. Ratio & Proportion – Solve problems based on comparative relationships

Q10: If $3:5 = x:25$, find x .

Solution:

$$x = \frac{3 \times 25}{5} = 15$$

Answer: 15

Q11: The sum of two numbers is 56, and their ratio is 3:4. Find the numbers.

Solution:

Let numbers be $3x$ and $4x$.

$$3x + 4x = 56 \quad 7x = 56 \Rightarrow x = 8$$

Numbers are **24** and **32**.

Answer: 24 and 32

Q12: The ratio of boys to girls in a class is 5:7. If there are 35 boys, how many girls are there?

Solution:

$$\text{Girls} = 7 \times 35 = 49 \quad \text{Girls} = \frac{7}{5} \times 35 = 49$$

Answer: 49 girls

5. Time & Work – Calculate the time taken for a task

Q13: A alone can complete a work in 10 days, and B alone can do it in 15 days. How many days will A and B together take?

Solution:

$$\text{Work rate} = \left(\frac{1}{10} + \frac{1}{15} \right) = \frac{3+2}{30} = \frac{1}{6} \quad \text{Work rate} = (10+15) = 30+2=61$$

Answer: 6 days

Q14: 10 men can complete a task in 20 days. How many days will 5 men take?

Solution:

$$\text{Total work} = 10 \times 20 = 200 \text{ units} \quad \text{Total work} = 10 \times 20 = 200 \text{ units} \quad \text{Time for 5 men} = \frac{200}{5} = 40 \text{ days} \quad \text{Time for 5 men} = \frac{200}{5} = 40 \text{ days}$$

Answer: 40 days

Q15: A can do a job in 5 days, B can do it in 10 days, and C in 20 days. How long will they take together?

Solution:

$$(15+110+120) = 4+2+120 = 720 \quad \left(\frac{1}{5} + \frac{1}{10} + \frac{1}{20} \right) = \frac{4+2+1}{20} = \frac{7}{20} \quad (51+101+201) = 204+2+1 = 207 \quad \text{Total days} = 207 \approx 2.86 \text{ days} \quad \text{Total days} = \frac{207}{7} \approx 2.86 \text{ days}$$

Answer: 2.86 days

1. Cause & Effect Analysis

Q1:

Statements:

1. The government has increased the tax on luxury goods.
2. The sale of luxury cars has decreased.

What is the relationship between these two statements?

- A) Statement 1 is the cause, and Statement 2 is the effect.
- B) Statement 2 is the cause, and Statement 1 is the effect.
- C) Both are independent causes.
- D) Both are effects of a common cause.

Solution:

The increase in tax leads to higher prices, which results in a decrease in luxury car sales.

Answer: A) Statement 1 is the cause, and Statement 2 is the effect.

Q2:

Statements:

1. A severe heatwave is reported in multiple cities.
2. Electricity consumption has surged due to excessive use of air conditioners.

Solution:

Hot weather leads to increased use of air conditioners, causing higher electricity consumption.

Answer: A) Statement 1 is the cause, and Statement 2 is the effect.

Q3:

Statements:

1. The company has announced a significant salary hike for employees.
2. The company has made record profits this year.

Solution:

The record profits allow the company to increase salaries.

Answer: B) Statement 2 is the cause, and Statement 1 is the effect.

2. Strengthening & Weakening Arguments

Q4:

Statement: Social media negatively affects mental health.

Which of the following strengthens this argument?

- A) Studies show increased anxiety in frequent social media users.
- B) Many people use social media for networking and job opportunities.
- C) Social media platforms introduce features to reduce screen time.
- D) People often use social media to stay connected with family.

Solution:

Option A directly supports the claim by providing evidence.

Answer: A) **Studies show increased anxiety in frequent social media users.**

Q5:

Statement: Online learning is as effective as classroom learning.

Which of the following weakens this argument?

- A) Many students find online classes convenient.
- B) Studies suggest online students have lower engagement levels.
- C) Online learning allows access to global courses.
- D) Many universities are offering online degree programs.

Solution:

Option B weakens the argument by highlighting a drawback.

Answer: B) **Studies suggest online students have lower engagement levels.**

Q6:

Statement: Increasing the minimum wage will reduce poverty.

Which of the following strengthens this argument?

- A) Higher wages help workers afford basic necessities.
- B) Some businesses may cut jobs due to higher wage costs.
- C) Many developed countries have high wages but still face poverty.
- D) Inflation may increase due to higher wages.

Solution:

Option A supports the argument by showing a positive effect.

Answer: A) **Higher wages help workers afford basic necessities.**

3. Course of Action

Q7:

Situation: A company is facing a high employee attrition rate.

What should the company do?

- A) Increase salaries and provide better benefits.
- B) Ignore the issue as new employees will replace the old ones.
- C) Stop hiring new employees.
- D) Reduce employee workload and increase engagement programs.

Solution:

Options A and D are logical steps to improve retention.

Answer: A) **Increase salaries and provide better benefits.** & D) **Reduce employee workload and increase engagement programs.**

Q8:

Situation: A city is facing severe water shortages.

What should the government do?

- A) Implement water conservation programs.
- B) Ban all industrial water usage.
- C) Build more water supply infrastructure.
- D) Educate citizens about water-saving techniques.

Solution:

Options A, C, and D are practical actions to address the issue.

Answer: A) **Implement water conservation programs.** & C) **Build more water supply infrastructure.**

Q9:

Situation: A school has noticed a decline in student academic performance.

What should the school do?

- A) Conduct additional tutoring sessions.
- B) Expel students with poor performance.
- C) Improve teaching methods and provide personalized learning support.
- D) Ignore the issue and continue with the same approach.

Solution:

Option C is the best approach, and A can also help.

Answer: A) **Conduct additional tutoring sessions.** & C) **Improve teaching methods and provide personalized learning support.**

4. Assumption-Based Questions

Q10:

Statement: "Only electric cars should be used to reduce pollution."

Assumption:

- A) Electric cars do not cause pollution.
- B) Electric cars are more expensive.
- C) The government wants to ban fuel-powered cars.
- D) People do not want to use electric cars.

Solution:

The statement assumes electric cars are pollution-free.

Answer: A) **Electric cars do not cause pollution.**

Q11:

Statement: "The new health policy will improve medical facilities in rural areas."

What is the assumption?

- A) Medical facilities in rural areas are currently inadequate.
- B) The government is planning to open new hospitals.
- C) Rural areas have more doctors than urban areas.
- D) Health policies always succeed.

Solution:

The assumption is that medical facilities in rural areas need improvement.

Answer: A) **Medical facilities in rural areas are currently inadequate.**

Q12:

Statement: "Increasing the tax on tobacco will reduce its consumption."

What is the assumption?

- A) Higher prices discourage consumption.
- B) People will switch to alternatives.
- C) Tobacco companies will go out of business.
- D) The government wants to ban tobacco.

Solution:

The assumption is that increased prices will lower demand.

Answer: A) **Higher prices discourage consumption.**

5. Evaluating Arguments

Q13:

Statement: "Fast food should be banned because it causes obesity."

Which of the following is a strong argument?

- A) Many people enjoy fast food.
- B) Obesity is caused by multiple factors, not just fast food.
- C) Fast food provides affordable meal options.
- D) Banning fast food would help reduce obesity rates.

Solution:

Option D strongly supports the argument.

Answer: D) **Banning fast food would help reduce obesity rates.**

Q14:

Statement: "Work-from-home increases employee productivity."

Which of the following weakens this argument?

- A) Employees have more flexibility in a work-from-home setup.
- B) Some employees face distractions at home.
- C) Companies are adopting hybrid work models.
- D) Work-from-home saves commuting time.

Solution:

Option B weakens the argument.

Answer: B) **Some employees face distractions at home.**

Q15:

Statement: "Public transport should be made free for all citizens."

Which of the following is a weak argument?

- A) Free transport will increase the burden on the government.
- B) Many people rely on public transport for daily commuting.
- C) Free transport will encourage more people to use public buses.
- D) The government will recover costs through increased taxes.

Solution:

Option D is weak because it assumes taxation will cover all costs.

Answer: D) **The government will recover costs through increased taxes.**