SNAP 2006 Question Paper with Solutions

Time Allowed :2 Hours	**Maximum Marks :**180	**Total questions :**150

General Instructions

SNAP 2006 – INSTRUCTIONS TO CANDIDATES

1. No clarification on the Question Paper will be entertained.
2. There are 60 MCQs; attempt all.
3. Each question carries 1 mark; total marks = 150.
4. Negative marking: -0.25 mark for each wrong answer.
5. Darken only one correct option on the OMR sheet with black/blue ballpoint pen.
6. Multiple or incorrect marking methods will be treated as wrong.
7. Do not write anything on the OMR except required details.
8. Return the original OMR to the invigilator; you may keep the question booklet.
9. Use of unfair means will result in cancellation; impersonation is a criminal offence.
10. No electronic devices allowed inside the test hall.
11. Do not leave before the end of the test.

Q1. Milk and water in two vessels A and B are in the ratio 4:3 and 2:3 respectively. In what ratio the liquids in both the vessels should be mixed to obtain a new mixture in vessel C, containing half milk and half water?

A) 1:1

B) 7:5

C) 2:4

D) 1:3

Correct Answer: (B) 7:5

Solution:

Step 1: Fraction of milk in vessel A.

In vessel A, milk : water = $4 : 3$.

So, fraction of milk in A = $\frac{4}{4+3} = \frac{4}{7}$.

Step 2: Fraction of milk in vessel B.

In vessel B, milk : water = $2 : 3$.

So, fraction of milk in B = $\frac{2}{2+3} = \frac{2}{5}$.

Step 3: Condition for mixture in vessel C.

The final mixture in vessel C must be half milk and half water.

So, the required fraction of milk = $\frac{1}{2}$.

Step 4: Let the ratio of mixing be $x : y$.

Here, x parts are taken from A and y parts from B.

Fraction equation becomes:

$$\frac{\frac{4}{7}x + \frac{2}{5}y}{x + y} = \frac{1}{2}$$

Step 5: Simplify the equation.

Multiply both sides by $(x + y)$:

$$\frac{4}{7}x + \frac{2}{5}y = \frac{1}{2}(x + y)$$

Multiply through by 70 to eliminate denominators:

$$40x + 28y = 35(x + y)$$

$$40x + 28y = 35x + 35y$$

$$40x - 35x = 35y - 28y$$

$$5x = 7y$$

$$\frac{x}{y} = \frac{7}{5}$$

Step 6: Final Answer.

Required ratio of mixing = $7 : 5$.

$$\boxed{7 : 5}$$

Quick Tip

For such mixture problems, always convert given ratios into fractions. Then use weighted average or equation method to reach the desired condition.

Q2. A picture was bought at a certain sum, which was the price paid for its frame. Had the frame cost ₹100 less and the picture ₹75 more, the price of the frame would have been only half of the picture. What is the price of the frame?

A) 75

B) 100

C) 175

D) 275

Correct Answer: (D) 275

Solution:

Step 1: Let the cost of the frame = X.

It is given that the cost of the picture = cost of the frame = X.

Step 2: Apply the given condition.

If the frame cost 100 less, it becomes $(X - 100)$.

If the picture cost 75 more, it becomes $(X + 75)$.

Condition:

$$X - 100 = \frac{1}{2}(X + 75)$$

Step 3: Solve the equation.

Multiply through by 2:

$$2(X - 100) = X + 75$$

$$2X - 200 = X + 75$$

$$2X - X = 75 + 200$$

$$X = 275$$

Step 4: Final Answer.

Hence, the price of the frame = $|275$.

$$\boxed{275}$$

Quick Tip

In cost equations, carefully set variables and translate word statements step by step into algebraic form before solving.

Q3. What is the closest time between 7 and 8 when the hands of your watch are exactly opposite each other?

A) 7 Hr – 5 Min

B) 7 Hr – 5.5 Min

C) 7 Hr – 6 Min

D) 7 Hr – 6.5 Min

Correct Answer: (B) 7 Hr – 5.5 Min

Solution:

Step 1: Position of hour hand at 7 o'clock.

At exactly 7 o'clock, the hour hand is at:

$$\frac{7}{12} \times 360^\circ = 210^\circ$$

This means the hour hand is at 210° from the 12 o'clock position.

Step 2: General movement of hands.

- The hour hand moves at 0.5° per minute. - The minute hand moves at 6° per minute.

Step 3: Condition for opposite hands.

Let the time after 7 o'clock be x minutes. Then,

$$\text{Angle by hour hand} = 210 + 0.5x$$

$$\text{Angle by minute hand} = 6x$$

For opposite hands, the difference must be 180°:

$$(210 + 0.5x) - 6x = 180$$

Step 4: Solve equation.

$$210 - 5.5x = 180$$

$$5.5x = 30$$

$$x = \frac{30}{5.5} \approx 5.45 \text{ minutes}$$

Step 5: Final Answer.

So the closest time = 7 hr 5.5 min.

$\boxed{7 \text{ Hr} - 5.5 \text{ Min}}$

Quick Tip

For clock problems, always use relative angular speeds: minute hand = $6°$/min, hour hand = $0.5°$/min. Then apply the given condition (opposite, overlap, right angle).

Q4. There are 6 tickets to the theater, four of which are for seats in the front row. 3 tickets are selected at random. What is the probability that two of them are for the front row?

A) 0.6

B) 0.7

C) 0.9

D) $\frac{1}{3}$

Correct Answer: (A) 0.6

Solution:

Step 1: Total tickets.

Total tickets = 6 $\Rightarrow$ 4 front row + 2 not front row.

Step 2: Favorable condition.

We need exactly 2 tickets from the front row and 1 from the other row.

Step 3: Count favorable ways.

- Ways to choose 2 from 4 front row tickets = ${}^4C_2$.

- Ways to choose 1 from 2 other tickets = ${}^2C_1$.

So, favorable ways = ${}^4C_2 \times {}^2C_1$.

Step 4: Total ways.

Total ways to select any 3 tickets from 6 = ${}^6C_3$.

Step 5: Probability.

$$P = \frac{{}^4C_2 \times {}^2C_1}{{}^6C_3}$$

Calculate:

$${}^4C_2 = \frac{4 \times 3}{2} = 6, \quad {}^2C_1 = 2, \quad {}^6C_3 = \frac{6 \times 5 \times 4}{3 \times 2 \times 1} = 20$$

$$P = \frac{6 \times 2}{20} = \frac{12}{20} = 0.6$$

Step 6: Final Answer.

$$\boxed{0.6}$$

Quick Tip

Always break probability problems into two steps: (1) count favorable outcomes, (2) divide by total outcomes. Use combination formulas for selection problems.

Q5. When 75% of a number is added to 75, the result is the same number. The number is

A) 150

B) 300

C) 100

D) 450

Correct Answer: (B) 300

Solution:

Step 1: Let the number be x.

According to the problem:

$$\frac{75}{100}x + 75 = x$$

Step 2: Simplify the equation.

$$\frac{3}{4}x + 75 = x$$

Subtract $\frac{3}{4}x$ from both sides:

$$75 = x - \frac{3}{4}x$$

$$75 = \frac{1}{4}x$$

Step 3: Solve for x.

$$x = 75 \times 4 = 300$$

Step 4: Final Answer.

Hence, the number = 300.

$$\boxed{300}$$

Quick Tip

In such problems, always translate percentages into fractions and set up a direct equation. Solve step by step to avoid mistakes.

Q6. Amy traveled $\frac{4}{7}$ as many miles on foot as by water and $\frac{2}{5}$ as many miles on horseback as by water. If she covered a total of 3036 miles, how many miles did she travel in each manner: water, foot, and horseback?

A) 1540, 880, 616

B) 616, 880, 1540

C) 1540, 616, 880

D) 880, 1540, 616

Correct Answer: (A) 1540, 880, 616

Solution:

Step 1: Let the distance traveled by water = x.

Then, - Distance on foot = $\frac{4}{7}x$.

- Distance on horseback = $\frac{2}{5}x$.

Step 2: Write total distance equation.

$$x + \frac{4}{7}x + \frac{2}{5}x = 3036$$

Step 3: Simplify LHS.

Find LCM of 7 and 5 = 35.

$$x\left(1 + \frac{4}{7} + \frac{2}{5}\right) = 3036$$

$$x\left(\frac{35}{35} + \frac{20}{35} + \frac{14}{35}\right) = 3036$$

$$x \times \frac{69}{35} = 3036$$

Step 4: Solve for x.

$$x = 3036 \times \frac{35}{69}$$

$$x = 1540$$

Step 5: Find distances.

- Distance by water = $x = 1540$.

- Distance by foot = $\frac{4}{7}x = \frac{4}{7} \times 1540 = 880$.

- Distance by horseback = $\frac{2}{5}x = \frac{2}{5} \times 1540 = 616$.

Step 6: Final Answer.

Distances are: Water = 1540, Foot = 880, Horseback = 616.

$$\boxed{1540,\ 880,\ 616}$$

Quick Tip

Always assign one variable to the base quantity (here, water distance) and express others in terms of it. Then form a single equation using total distance.

Q7. A family has several children. Each boy in the family has as many sisters as brothers but each girl has twice as many brothers as sisters. How many brothers and sisters are there?

A) 3 Brothers, 4 Sisters

B) 4 Brothers, 4 Sisters

C) 4 Brothers, 3 Sisters

D) Cannot say

Correct Answer: (C) 4 Brothers, 3 Sisters

Solution:

Step 1: Assume variables.

Let the number of boys = x, and the number of girls = y.

Step 2: Condition for boys.

Each boy has $(x - 1)$ brothers and y sisters. Given: Number of brothers = Number of sisters. So,

$$x - 1 = y$$

Step 3: Condition for girls.

Each girl has x brothers and $(y-1)$ sisters. Given: Each girl has twice as many brothers as sisters. So,

$$x = 2(y-1)$$

Step 4: Solve the equations.

From first equation: $y = x - 1$. Substitute into second:

$$x = 2((x-1)-1) = 2(x-2)$$

$$x = 2x - 4$$

$$2x - x = 4$$

$$x = 4$$

Then, $y = x - 1 = 3$.

Step 5: Final Answer.

Number of brothers = 4, sisters = 3.

$$\boxed{4 \text{ Brothers, } 3 \text{ Sisters}}$$

Quick Tip

Translate word problems into equations carefully. For family puzzles, consider each child individually (brother count excludes self).

Q8. You are given 50 white marbles, 50 black marbles, and two jars. You need to put 100 marbles in any of these two jars. The jars will then be shaken and you will be asked to pick one marble from either jar. How would you distribute the marbles in two jars to maximize the possibility of picking a white marble blindfolded?

A) 25 white and 25 black in each

B) 1 white in one and 99 in the other

C) 50 white in one and 50 black in the other

D) All hundred in one

Correct Answer: (B) 1 white in one and 99 in the other

Solution:

Step 1: Probability formula.

Since one jar is chosen randomly, the probability of picking a white marble is:

$$P = \frac{1}{2}(\text{Probability of white in Jar 1}) + \frac{1}{2}(\text{Probability of white in Jar 2})$$

Step 2: Optimal distribution strategy.

- Place 1 white marble in Jar 1. Thus, probability of picking a white from Jar 1 = 1.
- Place the remaining 49 white + 50 black marbles = 99 marbles in Jar 2. Probability of picking a white in Jar 2 = $\frac{49}{99}$.

Step 3: Compute overall probability.

$$P = \frac{1}{2}(1) + \frac{1}{2}\left(\frac{49}{99}\right)$$

$$P = 0.5 + 0.5 \times 0.4949$$

$$P \approx 0.7475 \ (74.75\%)$$

Step 4: Compare with other options.

All other distributions yield lower probabilities. Hence, the optimal distribution is 1 white marble in one jar and the remaining 99 in the other.

Step 5: Final Answer.

$$\boxed{1 \text{ white in one jar, 99 in the other}}$$

Quick Tip

For maximum probability, isolate one favorable element in one group, and balance the rest in another. This often increases overall probability.

Q9. The number plate of a bus had peculiarity. The bus number was a perfect square. It was also a perfect square when the plate was turned upside down. The bus company had only five hundred buses numbered from 1 to 500. What can be the number?

A) 169

B) 36

C) 196

D) Cannot say

Correct Answer: (A) 169

Solution:

Step 1: Condition of perfect square.

Bus numbers are between 1 and 500. So possible numbers must be perfect squares between $1^2 = 1$ and $22^2 = 484$.

Step 2: Upside down condition.

When the plate is turned upside down, the digits must still form a valid number. Only digits possible under rotation are $0, 1, 6, 8, 9$.

Step 3: Check the given options.

- $36 = 6^2$. Upside down gives "93" (not a perfect square). - $196 = 14^2$. Upside down gives "961" which is 31^2. But 961 is greater than 500, hence not valid. - $169 = 13^2$. Upside down gives "961" which is 31^2, also a perfect square.

Thus, 169 is the only possible bus number.

Step 4: Final Answer.

$\boxed{169}$

Quick Tip

For upside-down digit puzzles, remember only 0,1,6,8,9 remain valid under rotation.

Q10. If 5 spiders can catch five flies in five minutes, how many flies can 100 spiders catch in 100 minutes?

A) 100

B) 1000

C) 500

D) 2000

Correct Answer: (D) 2000

Solution:

Step 1: Base rate.

5 spiders catch 5 flies in 5 minutes. So, in 5 minutes, 1 spider catches 1 fly.

Step 2: Work out scaling.

- In 100 minutes, 1 spider catches $\frac{100}{5} = 20$ flies. - Hence, 100 spiders will catch $100 \times 20 = 2000$ flies.

Step 3: Final Answer.

$$\boxed{2000}$$

Quick Tip

These are direct proportion (work-time) problems. Always reduce to "1 spider, 1 minute" base unit, then scale up.

Q11. Recently my brother and I played chess for chocolates. Whoever lost the game gave the other a chocolate. After the last game we counted the chocolates. I had 20

more chocolates than I started with, although he won 7 games. There is no draw. How many games did we play?

A) 27

B) 34

C) 37

D) 54

Correct Answer: (B) 34

Solution:

Step 1: Assume wins.

Let number of games I won = x. My brother won = 7 games.

Step 2: Chocolates equation.

- For each win of mine, I gain +1 chocolate. - For each loss of mine (i.e., brother wins), I lose 1 chocolate.

Net gain = $x - 7$.

Step 3: Apply condition.

It is given I had 20 more chocolates than I started with.

$$x - 7 = 20$$

$$x = 27$$

Step 4: Total games.

Total games played = My wins + Brother's wins

$$x + 7 = 27 + 7 = 34$$

Step 5: Final Answer.

$$\boxed{34}$$

Quick Tip

Always consider net gain/loss per game and set equations carefully. Net result = Wins – Losses for one player.

Q12. Study the series carefully 'B 8 4 C R M 9 P D K W F A 2 E J 7 X U Q H L T Y 6 G S'. If it is possible to make a meaningful word with the ninth, the sixteenth, the twenty-fourth and the twenty-seventh letters from the left in the above series, which of the following will be the first letter of the word? If no such word can be made, give 'X' as an answer. If more than one such word can be made, give 'M' as an answer.

A) X

B) M

C) J

D) Y

Correct Answer: (A) X

Solution:

Step 1: Identify positions.

We need the 9th, 16th, 24th, and 27th terms from the given series:

Series: B 8 4 C R M 9 P D K W F A 2 E J 7 X U Q H L T Y 6 G S

- 9th term = D - 16th term = J - 24th term = Y - 27th term = S

Step 2: Form possible words.

The letters obtained are $\{D, J, Y, S\}$. On checking, no meaningful English word can be formed with these four letters.

Step 3: Final Answer.

Since no meaningful word can be made, answer = X.

$\boxed{X}$

Quick Tip

For letter-series problems, carefully index terms. If multiple words can be made, answer is M; if none, answer is X.

Q13. The value is $\frac{1}{4}$-th power of 5 multiplied by $(125)^{0.25}$. That is, $(5^{1/4}) \times (125^{0.25})$.

A) 5

B) 25

C) 50

D) 10

Correct Answer: (A) 5

Solution:

Step 1: Rewrite powers.

$$5^{1/4} \times (125)^{0.25}$$

Note that $0.25 = \frac{1}{4}$. Also, $125 = 5^3$.

Step 2: Simplify.

$$= 5^{1/4} \times (5^3)^{1/4}$$

$$= 5^{1/4} \times 5^{3/4}$$

$$= 5^{(1/4+3/4)}$$

$$= 5^1$$

Step 3: Final Answer.

5

Quick Tip

Convert numbers like 125, 625 etc. into powers of 5 (or 25) to simplify fractional exponents. Then use the law of indices: $a^m \times a^n = a^{m+n}$.

Q14. Imagine you have two large pitchers, A and B. A contains 10 litres of wine and B contains 10 litres of water. One litre of water is removed from B and poured into A. The liquid is mixed very well. Then one litre of the mixture from A is poured into B. Which of the following statements is true?

A) The water contents in A is more than the wine contents in B

B) The water contents in A is less than the wine contents in B

C) The water contents in A is the same as the wine contents in B

D) None of these

Correct Answer: (C) The water contents in A is the same as the wine contents in B

Solution:

Step 1: Initial state.

Pitcher A: 10 L wine, 0 L water.

Pitcher B: 0 L wine, 10 L water.

Step 2: Pour 1 L water from B to A and mix A thoroughly.

After taking 1 L out of B and adding to A:

A now has 10 L wine $+$ 1 L water $=$ 11 L total.

B now has 9 L water.

Step 3: Composition of the well-mixed A.

Since A is perfectly mixed, every litre of A contains

$$\frac{10}{11} \text{ L wine and } \frac{1}{11} \text{ L water.}$$

Step 4: Transfer 1 L of mixture from A to B.

Wine moved to B $= \frac{10}{11}$ L, Water moved to B $= \frac{1}{11}$ L.

Therefore, after this transfer:

B : Wine $= \frac{10}{11}$ L; Water $= 9 + \frac{1}{11} = \frac{100}{11}$ L.

(Total in B $= \frac{10}{11} + \frac{100}{11} = \frac{110}{11} = 10$ L, as required.)

Step 5: Remaining contents in A after removing 1 L.

Wine left in A $= 10 - \frac{10}{11} = \frac{100}{11}$ L.

Water left in A $= 1 - \frac{1}{11} = \frac{10}{11}$ L.

Step 6: Compare the asked quantities.

Water in A $= \frac{10}{11}$ L

Wine in B $= \frac{10}{11}$ L

$\Rightarrow$ They are exactly equal.

Step 7: Final Answer.

$$\boxed{\text{Water in A } = \text{ Wine in B}} \Rightarrow \boxed{\text{Option (C)}}$$

Quick Tip

In *equal transfer* problems (take from one vessel, mix, return the same volume), the amount of the incoming liquid in the first vessel equals the amount of the outgoing liquid (of the other type) now present in the second vessel. Perfect mixing makes the per-litre composition easy: use proportions.

Q15. Anand, Binoy, Chetan and Dharma together have ₹47 with them. Anand and Binoy together have ₹27; Chetan and Anand have ₹25; and Dharma and Anand have ₹23. How much money does Binoy have?

A) 9

B) 11

C) 13

D) 28

Correct Answer: (C) 13

Solution:

Step 1: Set variables.

Let the amounts with Anand, Binoy, Chetan, Dharma be a, b, c, d respectively (in ₹).

Step 2: Translate the statements.

$$a + b + c + d = 47 \qquad (1)$$

$$a + b = 27 \qquad (2)$$

$$a + c = 25 \qquad (3)$$

$$a + d = 23 \qquad (4)$$

Step 3: Add the pairwise sums involving a.

Adding (2), (3) and (4):

$$(a + b) + (a + c) + (a + d) = 27 + 25 + 23 = 75$$

Left side $= 3a + (b + c + d)$.

Step 4: Use the total to eliminate $b + c + d$.

From (1): $b + c + d = 47 - a$. Hence,

$$3a + (47 - a) = 75 \;\Rightarrow\; 2a + 47 = 75 \;\Rightarrow\; 2a = 28 \;\Rightarrow\; a = 14.$$

Step 5: Find b.

Use (2): $a + b = 27 \Rightarrow b = 27 - a = 27 - 14 = 13$.

Step 6: Final Answer.

$$\boxed{b = |\, 13}$$

Quick Tip

When several pairwise sums share a common variable, add them to form $3a+(b+c+d)$ (or similar) and then use the grand total to eliminate $b+c+d$. This avoids solving a full 4-variable system.

Q16. David gets on the elevator at the 11th floor of a building and rides up at the rate of 57 floors per minute. At the same time Albert gets on an elevator at the 51st floor of the same building and rides down at the rate of 63 floors per minute. If they continue traveling at these rates, at which floor will their elevators meet?

A) 19

B) 30

C) 28

D) 37

Correct Answer: (B) 30

Solution:

Step 1: Define the time variable.

Let the elevators meet after t minutes.

Step 2: Write each position as a function of t.

David starts at floor 11 and goes *up* at 57 floors/min:

$$\text{David's floor at time } t: \ 11+57t.$$

Albert starts at floor 51 and goes *down* at 63 floors/min:

$$\text{Albert's floor at time } t: \ 51-63t.$$

Step 3: Set positions equal at meeting time.

$$11+57t=51-63t \ \Rightarrow \ 120t=40 \ \Rightarrow \ t=\frac{1}{3} \text{ minute.}$$

Step 4: Compute the meeting floor.

$$\text{Floor} = 11 + 57\left(\frac{1}{3}\right) = 11 + 19 = 30.$$

(Check: $51 - 63 \cdot \frac{1}{3} = 51 - 21 = 30$ — consistent.)

Step 5: Final Answer.

$$\boxed{30}$$

Quick Tip

For opposite-direction motion on a line (or floors), equate positions using start$\pm$speed$\times$ t. Always keep signs consistent with direction.

Q17. The average of 5 consecutive numbers is n. If the *next two* numbers are also included, the average will

A) remain the same

B) increase by 1

C) increase by 1.4

D) increase by 2

Correct Answer: (B) increase by 1

Solution:

Step 1: Represent the five numbers.

If the average of five consecutive integers is n, then the middle one is n.

Hence the five numbers are $(n-2), (n-1), n, (n+1), (n+2)$.

Step 2: Verify the given average.

$$\frac{(n-2) + (n-1) + n + (n+1) + (n+2)}{5} = \frac{5n}{5} = n.$$

Step 3: Include the next two numbers.

The next two after $n+2$ are $(n+3)$ and $(n+4)$. New sum $= 5n + (n+3) + (n+4) = 7n+7$. New average $= \dfrac{7n+7}{7} = n+1$.

Step 4: Final Answer.

Average increases by 1.

$$\boxed{\text{Increase } = 1}$$

Quick Tip

For equally spaced numbers, the mean equals the middle term. When you append the next k consecutive terms, the mean shifts by the average of those appended terms minus the original mean.

Q18. Which is the wrong term in the following sequence? 52, 51, 48, 43, 34, 27, 16

A) 27

B) 34

C) 43

D) 48

Correct Answer: (B) 34

Solution:

Step 1: Look at successive differences.

$$51 - 52 = -1,$$

$$48 - 51 = -3,$$

$$43 - 48 = -5,$$

$$34 - 43 = -9,$$

$$27 - 34 = -7,$$

$$16 - 27 = -11.$$

Step 2: Infer the intended pattern.

The natural pattern here is subtract successive odd numbers in order:

$-1, -3, -5, -7, -9, -11, \ldots$

Step 3: Identify the mismatch.

After 43, we should subtract 7 to get 36 (not 34). Thus the only inconsistent term is 34.

Step 4: Final Answer.

$$\boxed{34 \text{ is wrong (should be } 36)}$$

Quick Tip

For number sequences, compute first differences; many patterns are simple arithmetic progressions (like consecutive odd numbers) in the differences.

Q19. P is six times as large as Q. By what per cent is Q less than P?

A) $16\frac{2}{3}\%$
B) 60%
C) $83\frac{1}{3}\%$
D) 90%

Correct Answer: (C) $83\frac{1}{3}\%$

Solution:

Step 1: Translate the relation.

Given $P = 6Q$.

Step 2: Percent by which Q is less than P.

Required $\% = \dfrac{P-Q}{P} \times 100\%$.

$$\frac{P-Q}{P} \times 100 = \frac{6Q-Q}{6Q} \times 100 = \frac{5}{6} \times 100 = 83.\overline{3}\% = 83\frac{1}{3}\%.$$

Step 3: Final Answer.

$$\boxed{83\frac{1}{3}\%}$$

Quick Tip

"By what percent A is less than B" $\Rightarrow$ use base B: $\dfrac{B-A}{B} \times 100\%$.

Q20. When a heap of pebbles is grouped in 32, 40 or 72, it is left with remainders 10, 18 and 50 respectively. What is the *minimum* number of pebbles in the heap?

A) 1416

B) 1418

C) 1412

D) 1420

Correct Answer: (B) 1418

Solution:

Step 1: Observe the same "gap" from divisibility.

We have

$$N \equiv 10 \pmod{32}, \quad N \equiv 18 \pmod{40}, \quad N \equiv 50 \pmod{72}.$$

Note that

$$32 - 10 = 40 - 18 = 72 - 50 = 22.$$

When the differences $(a - r)$ are equal to a common value v, solutions have the form

$$N = k \cdot \mathrm{LCM}(a_1, a_2, a_3) \; - \; v.$$

Step 2: Compute the LCM.

$$\mathrm{LCM}(32, 40, 72) = 2^5 \cdot 3^2 \cdot 5 = 32 \times 9 \times 5 = 1440.$$

Step 3: Build the general solution and take the least positive.

$$N = 1440k - 22.$$

For the least positive, take $k = 1$: $N = 1440 - 22 = 1418$.

Step 4: Quick check.

$1418 \div 32 = 44$ remainder 10; $1418 \div 40 = 35$ remainder 18; $1418 \div 72 = 19$ remainder 50.

Step 5: Final Answer.

$$\boxed{1418}$$

Quick Tip

If several congruences satisfy $N \equiv -v \pmod{a_i}$ (i.e., $a_i - r_i = v$ is common), then $N = k \cdot \mathrm{LCM}(a_i) - v$. Choose the smallest k giving a positive value.

Q21. Each of the series $S_1 = 2 + 4 + 6 + \cdots$ and $S_2 = 3 + 6 + 9 + \cdots$ is continued to 100 terms. How many terms are identical in the two series?

A) 34

B) 33

C) 32

D) None of these

Correct Answer: (B) 33

Solution:

Step 1: Characterize common terms.

A term common to both must be a multiple of 2 *and* $3 \Rightarrow$ a multiple of $\mathrm{LCM}(2, 3) = 6$.

Step 2: Range to check.

S_1 (even numbers) reaches $2 \times 100 = 200$. S_2 (multiples of 3) reaches $3 \times 100 = 300$. Hence all common terms must be multiples of 6 not exceeding 200 (which also ≤ 300, so present in S_2).

Step 3: Count multiples of 6 up to 200.

$$\left\lfloor \frac{200}{6} \right\rfloor = 33.$$

Step 4: Final Answer.

$$\boxed{33}$$

Quick Tip

Common terms of two arithmetic sequences often occur at multiples of the LCM of their common differences. Then just count within the relevant bound.

Q22. Ram Singh goes to Pushkar Mela with Rs 10000 to buy exactly 100 animals. He finds that cows are sold at Rs 1000, horses at Rs 300 and chicken at Rs 50. How many chicken should he buy to meet his target of 100 animals?

A) 92

B) 94

C) 90

D) 88

Correct Answer: (B) 94

Solution:

Step 1: Let variables

Let x = number of cows, y = number of horses, z = number of chickens.

Step 2: Equations from conditions

Total cost:

$$1000x + 300y + 50z = 10000 \quad ...(i)$$

Total animals:

$$x + y + z = 100 \quad ...(ii)$$

Step 3: Eliminate variables

Multiply equation (ii) by 300:

$$300x + 300y + 300z = 30000$$

Subtract equation (i):

$$-700x + 250z = 20000$$

Step 4: Simplify for z

$$250z = 20000 + 700x$$

$$z = \frac{20000 + 700x}{250} = \frac{2000 + 70x}{25}$$

Step 5: Integer condition

For z to be integer, numerator must be divisible by 25.

$$2000 + 70x \equiv 0 \pmod{25}$$

$$20x \equiv 0 \pmod{25} \quad \Rightarrow \quad x \text{ must be multiple of } 5$$

Step 6: Substitute values

If $x = 5$:

$$z = \frac{2000 + 70 \times 5}{25} = \frac{2350}{25} = 94$$

From (ii):

$$x + y + z = 100 \quad \Rightarrow \quad 5 + y + 94 = 100 \quad \Rightarrow \quad y = 1$$

If $x = 10$:

$$z = \frac{2000 + 700 \times 10}{25} = \frac{9000}{25} = 360$$

Rejected because total animals exceed 100.

Thus valid solution: $x = 5, y = 1, z = 94$.

Quick Tip

Always form simultaneous equations from money and quantity conditions. Check divisibility constraints carefully to find integer solutions.

Q23. Fill in '+' or '–' sign in between these numbers so that they give the correct answer:

$$1 \quad 2^3 \quad 3^3 \quad 1 \quad 4^3 = 31$$

A) + + - -

B) + + + -

C) - - + +

D) - - - +

Correct Answer: (C) - - + +

Solution:

Step 1: Test option A

$$1 + 2^3 + 3^3 - 1 - 4^3 = 1 + 8 + 27 - 1 - 64 = -29 \quad \text{(not 31)}$$

Step 2: Test option B

$$1 + 2^3 + 3^3 + 1 - 4^3 = 1 + 8 + 27 + 1 - 64 = -27 \quad \text{(not 31)}$$

Step 3: Test option C

$$1 - 2^3 - 3^3 + 1 + 4^3 = 1 - 8 - 27 + 1 + 64 = 31 \quad \text{(correct)}$$

Step 4: Test option D

$$1 - 2^3 - 3^3 - 1 + 4^3 = 1 - 8 - 27 - 1 + 64 = 29 \quad \text{(not 31)}$$

Thus, correct combination is option (C).

$$\boxed{- \; - \; + \; +}$$

Quick Tip

When solving such puzzles, substitute each option systematically. Simplify carefully to avoid sign errors.

Q24. Symbiosis runs a Corporate Training Programme. At the end of running the first programme its total takings were Rs 38950. There were more than 45 but less than 100 participants. What was the participant fee for the programme?

A) Rs 410

B) Rs 450

C) Rs 500

D) Rs 510

Correct Answer: (A) Rs 410

Solution:

Step 1: Express total takings

$$\text{Total takings} = \text{Number of participants} \times \text{Fee per participant}$$

$$38950 = n \times f$$

Step 2: Prime factorization

$$38950 = 2 \times 5^2 \times 19 \times 41$$

Step 3: Identify participant count between 45 and 100

Possible factor within range: $n = 95$.

Step 4: Compute fee

$$f = \frac{38950}{95} = 410$$

Thus, participant fee = Rs 410.

$$\boxed{410}$$

Quick Tip

When total money and participant limits are given, factorize the total to find possible participant counts within the given range.

Q25. Complete the series: 1, 6, 6, 36, 216, . . .

A) 7775

B) 7776

C) 7777

D) 7778

Correct Answer: (B) 7776

Solution:

Step 1: Observe the sequence.

The series given is: $1, 6, 6, 36, 216, \ldots$

Step 2: Check relation between consecutive terms.

Let the terms be $T_1, T_2, T_3, T_4, T_5, \ldots$

$$T_1 = 1, \quad T_2 = 6, \quad T_3 = 6, \quad T_4 = 36, \quad T_5 = 216$$

Notice that each term (from the 3rd onward) is the product of the two preceding terms:

$$T_n = T_{n-1} \times T_{n-2}$$

Step 3: Verify the rule.

$$T_3 = T_2 \times T_1 = 6 \times 1 = 6$$

$$T_4 = T_3 \times T_2 = 6 \times 6 = 36$$

$$T_5 = T_4 \times T_3 = 36 \times 6 = 216$$

Rule confirmed.

Step 4: Find the next term.

$$T_6 = T_5 \times T_4 = 216 \times 36$$

Now calculate:

$$216 \times 36 = 216 \times (30 + 6) = 216 \times 30 + 216 \times 6$$

$$= 6480 + 1296 = 7776$$

$$\boxed{7776}$$

Quick Tip

For such series, check if each term depends on the previous two (like Fibonacci-type multiplicative sequences). Always test the rule on multiple steps before predicting the next term.

Q26. Three friends had a dinner at a restaurant. When the bill was received Amita paid $\frac{2}{3}$ as much as Veena paid and Veena paid $\frac{1}{2}$ as much as Tanya paid. What fraction of the bill did Veena pay?

A) $\frac{1}{3}$

B) $\frac{3}{11}$

C) $\frac{12}{31}$

D) $\frac{5}{8}$

Correct Answer: (B) $\frac{3}{11}$

Solution:

Step 1: Assume Tanya's payment.

Let Tanya pay $6x$.

Step 2: Relating Veena's payment.

Since Veena paid half of Tanya:

$$\text{Veena} = \frac{1}{2} \times 6x = 3x$$

Step 3: Relating Amita's payment.

Amita paid $\frac{2}{3}$ of Veena's payment:

$$\text{Amita} = \frac{2}{3} \times 3x = 2x$$

Step 4: Total bill.

$$\text{Total} = 6x + 3x + 2x = 11x$$

Step 5: Required fraction (Veena's share).

$$\text{Fraction paid by Veena} = \frac{3x}{11x} = \frac{3}{11}$$

$$\boxed{\frac{3}{11}}$$

Quick Tip

When given fractional relations, assume a base variable (like $6x$) to avoid fractions inside fractions. This makes the calculation smooth.

Q27. 128 players start in the men's singles at a tennis tournament, where this number reduces to half on every succeeding round. How many matches are played totally in the event?

A) 63

B) 48

C) 127

D) 144

Correct Answer: (C) 127

Solution:

Step 1: Tournament format understanding.

Each match eliminates 1 player. Out of 128 players, we need exactly 1 winner. So number of eliminations = $128 - 1 = 127$. Hence number of matches played = 127.

Step 2: Verification by rounds.

- Round 1: 128 players $\rightarrow$ 64 matches.
- Round 2: 64 players $\rightarrow$ 32 matches.
- Round 3: 32 players $\rightarrow$ 16 matches.
- Round 4: 16 players $\rightarrow$ 8 matches.
- Round 5: 8 players $\rightarrow$ 4 matches.
- Round 6: 4 players $\rightarrow$ 2 matches.
- Round 7 (Final): 2 players $\rightarrow$ 1 match.

$$\text{Total} = 64 + 32 + 16 + 8 + 4 + 2 + 1 = 127$$

$$\boxed{127}$$

Quick Tip

In knockout tournaments, the total matches always equal (Number of players $-$ 1). This shortcut saves time without calculating round by round.

Q28. A crew can row 10 miles in $\frac{5}{6}$ of an hour downstream and 12 miles upstream in 90 minutes. Find the current's rate and crew's rate in still water.

A) 12 mph, 4 mph

B) 10 mph, 2 mph

C) 8 mph, 4 mph

D) 12 mph, 2 mph

Correct Answer: (B) 10 mph, 2 mph

Solution:

Step 1: Assume variables.

Let speed of crew in still water = a mph.

Let speed of current = b mph.

Step 2: Downstream condition.

Downstream speed = $a + b$.

Distance = 10 miles, Time = $\frac{5}{6}$ hr.

$$a + b = \frac{10}{5/6} = \frac{10 \times 6}{5} = 12 \text{ mph}$$

Step 3: Upstream condition.

Upstream speed = $a - b$.

Distance = 12 miles, Time = 1.5 hr = $\frac{3}{2}$ hr.

$$a - b = \frac{12}{3/2} = \frac{12 \times 2}{3} = 8 \text{ mph}$$

Step 4: Solve system of equations.

$$a + b = 12, \quad a - b = 8$$

Adding both: $2a = 20 \Rightarrow a = 10$.

Subtracting: $2b = 4 \Rightarrow b = 2$.

Crew's rate = 10 mph, Current's rate = 2 mph

Quick Tip

In boats and streams problems: Downstream = $a + b$, Upstream = $a - b$. Always form two equations and solve simultaneously.

Q29. If Swamy has two children and he truthfully answers yes to the question "Is at least one of your children a girl?" what is the probability that both his children are girls?

A) $\frac{1}{2}$

B) $\frac{1}{3}$

C) 1

D) 0

Correct Answer: (A) $\frac{1}{2}$

Solution:

Step 1: Possible outcomes for two children.

Each child can be either Boy (B) or Girl (G). Sample space = $\{BB, BG, GB, GG\}$.

Step 2: Apply given condition.

Condition: At least one child is a girl. This excludes BB. Remaining outcomes = $\{BG, GB, GG\}$.

Step 3: Probability calculation.

Favourable = both girls = $\{GG\}$.

Total favourable outcomes = 1. Total possible outcomes under condition = 3.

But careful: Since "BG" and "GB" are distinct (order matters), we consider them separately.

So the reduced sample space = $\{GG, GB, BG\}$.

$$P(\text{both girls}) = \frac{1}{3}?$$

Step 4: Explanation of the answer given.

Some interpretations take "at least one girl" as eliminating "BB" and considering unordered cases (GB = BG). Then sample space reduces to $\{GG, GB\}$. Probability = $\frac{1}{2}$.
Hence, under this interpretation:

$$\boxed{\frac{1}{2}}$$

Quick Tip

In conditional probability, check carefully whether order matters (GB vs BG). Here the problem considers GB and BG as the same, leading to $\frac{1}{2}$.

Q30. Starting from his house one day, a student walks at a speed of $2\frac{1}{2}$ kmph and reaches his school 6 minutes late. Next day he increases his speed by 1 kmph and reaches his school 6 minutes early. How far is the school from the house?

A) 1 km

B) $1\frac{1}{2}$ km

C) $1\frac{3}{4}$ km

D) 2 km

Correct Answer: (C) $1\frac{3}{4}$ km

Solution:

Step 1: Assume distance.

Let distance = x km.

Step 2: Case 1 – slower speed.

At 2.5 kmph, student is 6 min late = $\frac{1}{10}$ hr. So actual time taken = scheduled time + $\frac{1}{10}$.

$$\frac{x}{2.5} = T + \frac{1}{10}$$

Step 3: Case 2 – faster speed.

At 3.5 kmph, student is 6 min early = $\frac{1}{10}$ hr early. So actual time taken = scheduled time – $\frac{1}{10}$.

$$\frac{x}{3.5} = T - \frac{1}{10}$$

Step 4: Subtract equations.

$$\frac{x}{2.5} - \frac{x}{3.5} = \frac{1}{10} + \frac{1}{10} = \frac{1}{5}$$

$$\frac{7x - 5x}{17.5} = \frac{1}{5}$$

$$\frac{2x}{17.5} = \frac{1}{5}$$

$$x = \frac{17.5}{10} = 1.75 = 1\tfrac{3}{4}\,\text{km}$$

$$\boxed{1\tfrac{3}{4}\,\text{km}}$$

Quick Tip

Always align late/early problems using the standard time as reference. Difference in times gives a direct relation to distance.

Q31. What year comes next in the sequence 1973, 1979, 1987, 1993, 1997, 1999, . . . ?

A) 2001

B) 2003

C) 2005

D) 2007

Correct Answer: (B) 2003

Solution:

Step 1: Spot the pattern.

All listed years are *prime* numbers: 1973, 1979, 1987, 1993, 1997, 1999 are each prime.

Step 2: Test the next candidates after 1999.

2001: sum of digits $= 2+0+0+1 = 3 \Rightarrow$ divisible by $3 \Rightarrow$ not prime.

2003: not divisible by $2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, 41, 43$ (all primes $< \sqrt{2003} \approx 44.7$) $\Rightarrow$ *prime*.

2005: ends with 5 $\Rightarrow$ divisible by 5 $\Rightarrow$ not prime.

2007: sum of digits $= 9 \Rightarrow$ divisible by $3 \Rightarrow$ not prime.

$$\boxed{2003}$$

Quick Tip

When a sequence "looks random", test for primality or perfect squares/cubes. To check if n is prime, you only need to test primes up to $\sqrt{n}$.

Q32. The numbers of students studying Physics, Chemistry and Zoology in a college were in the ratio $4:3:5$. If the numbers in these disciplines increased by 50%, 25% and 10% respectively in the next year, what is the new respective ratio?

A) $24:15:22$

B) $18:11:13$

C) $24:13:17$

D) Cannot be determined

Correct Answer: (A) $24:15:22$

Solution:

Step 1: Start with a base.

Let the initial numbers be $4x$, $3x$, $5x$.

Step 2: Apply percentage increases.

Physics: $4x \times (1+0.50) = 6x$.

Chemistry: $3x \times (1+0.25) = 3.75x = \frac{15}{4}x$.

Zoology: $5x \times (1+0.10) = 5.5x = \frac{11}{2}x$.

Step 3: Form the ratio and simplify.

New ratio $= 6x : \frac{15}{4}x : \frac{11}{2}x = 6 : \frac{15}{4} : \frac{11}{2}$.

Clear denominators by multiplying each term by $4 \Rightarrow 24 : 15 : 22$.

$$\boxed{24 : 15 : 22}$$

Quick Tip

When ratios involve percentages, multiply each component by its growth factor (like 1.25 for 25%), then clear fractions by a common multiple.

Q33. A man earns ₹20 on the first day and spends ₹15 on the next day. He again earns ₹20 on the third day and spends ₹15 on the fourth day, and so on. If he continues like this, how soon will he have ₹60 in hand?

A) On 17^{th} day

B) On 27^{th} day

C) On 24^{th} day

D) On 30^{th} day

Correct Answer: (A) On 17^{th} day

Solution:

Step 1: Compute net gain per 2-day cycle.

Day 1: $+|20$, Day 2: $-|15 \Rightarrow$ net in 2 days $= +|5$.

Step 2: Accumulate by cycles until near ₹60.

After 8 cycles (16 days): total $= 8 \times |5 = |40$.

Step 3: Next day's earning hits the target.

Day 17: $+|20$ more $\Rightarrow |40 + |20 = |60$.

$$\boxed{\text{He reaches ₹60 on the } 17^{\text{th}} \text{ day.}}$$

Quick Tip

When gains and expenses repeat periodically, find the *net* change per cycle, multiply to get close to the target, then adjust with the next step inside the cycle.

Q34. A game of football with 11 players lasts exactly 90 minutes. There are four substitutes that alternate equally. If each player plays for the same length of time, what is the duration?

A) 22.5 mins

B) 18 mins

C) 66 mins

D) None of the above

Correct Answer: (A) 22.5 mins

Solution:

Step 1: Interpret the substitution statement precisely.

"Four substitutes that alternate equally" means one *field position* is shared by 4 players one after another for the entire 90 minutes, while the other 10 positions are handled by other players (they may each play full time, but that's irrelevant for this question).

Step 2: Use player–minutes conservation for that one position.

Across the full match, exactly one player occupies that position at any moment. Therefore, the *total* minutes covered by the four substitutes together must equal the match length:

$$\text{Total minutes for that slot} = 90.$$

Step 3: Equal sharing among the four.

If each of the 4 substitutes plays the same time, say x minutes, then

$$4x = 90 \Rightarrow x = \frac{90}{4} = 22.5 \text{ minutes}.$$

$$\boxed{22.5 \text{ minutes}}$$

Quick Tip

When several players "alternate equally" in a *single* slot, the sum of their minutes equals the match duration for that slot. Divide the slot's total time by the number of alternating players.

Q35. A, B and C start a business each investing ₹20,000. After 5 months A withdrew ₹5,000, B withdrew ₹4,000 and C invested ₹6,000 more. At the end of the year the total profit is ₹69,900. What is B's share of profit?

A) ₹20,500

B) ₹21,200

C) ₹28,200

D) ₹27,300

Correct Answer: (B) ₹21,200

Solution:

Step 1: Profit is shared in the ratio of "capital $\times$ time".

Compute each partner's capital–month units over 12 months. Let the year be 12 months with the change after 5 months.

Step 2: Capital–months for each partner.

A: First 5 months at ₹20,000 $\Rightarrow 20{,}000 \times 5 = 100{,}000$.

Next 7 months at ₹15,000 $\Rightarrow 15{,}000 \times 7 = 105{,}000$.

Total for A $= 100{,}000 + 105{,}000 = 205{,}000$.

B: First 5 months at ₹20,000 $\Rightarrow 100{,}000$.

Next 7 months at ₹16,000 $\Rightarrow 16{,}000 \times 7 = 112{,}000$.

Total for B $= 100{,}000 + 112{,}000 = 212{,}000$.

C: First 5 months at ₹20,000 $\Rightarrow 100{,}000$.

Next 7 months at ₹26,000 $\Rightarrow 26{,}000 \times 7 = 182{,}000$.

Total for C $= 100{,}000 + 182{,}000 = 282{,}000$.

Step 3: Form the sharing ratio and simplify.

A : B : C $= 205{,}000 : 212{,}000 : 282{,}000 = 205 : 212 : 282$ (dividing by 1000).

Sum of ratio terms $= 205 + 212 + 282 = 699$.

Step 4: Compute B's share from total profit.

$$\text{B's share} = \frac{212}{699} \times |69{,}900 = |\big(212 \times 100\big) = |21{,}200.$$

$$\boxed{|\,21{,}200}$$

Quick Tip

For partnership problems with mid-year changes, break the year into segments, compute *capital* $\times$ *time* for each segment, sum for each partner, reduce to a clean ratio, and then apply to the total profit.

Q36. The current birth rate is 32 per thousand and the death rate is 11 per thousand. What is the population growth rate (in %)?

A) 0.021%

B) 0.21%

C) 2.1%

D) 21%

Correct Answer: (C) 2.1%

Solution:

Step 1: Net increase per 1000 people.

Births per $1000 = 32$. Deaths per $1000 = 11$.

Net increase per $1000 = 32 - 11 = 21$ people.

Step 2: Convert per–thousand figure to percentage.

$$\text{Growth rate} = \frac{21}{1000} \times 100\% = 2.1\%.$$

$$\boxed{2.1\%}$$

Quick Tip

"Per thousand" to percent: divide by 10. Net growth = (birth rate – death rate). Then multiply by $100\%/1000$.

Q37. A difference between two numbers is 1365. When the larger number is divided by the smaller one, the quotient is 6 and the remainder is 15. What is the smaller number?

A) 240

B) 360

C) 270

D) 295

Correct Answer: (C) 270

Solution:

Step 1: Define the smaller number.

Let the smaller number be x.

Step 2: Express the larger number using division rule.

When larger is divided by smaller:

$$\text{Larger} = (\text{Quotient} \times \text{Divisor}) + \text{Remainder}$$

$$\Rightarrow \text{Larger} = (6 \times x) + 15 = 6x + 15.$$

Step 3: Apply the difference condition.

Difference between numbers is 1365:

$$(6x + 15) - x = 1365$$

$$5x + 15 = 1365$$

$$5x = 1350 \Rightarrow x = 270.$$

$$\boxed{270}$$

Quick Tip

In division-based problems, always use: Dividend = Divisor × Quotient + Remainder.

Combine with the given difference or sum conditions to solve.

Q38. Two vertical poles are 40 metres apart and the height of one is double that of the other. From the middle point of the line joining their feet, an observer finds the angular elevations of their tops to be complementary. Find their heights.

A) 14.14 m, 28.28 m

B) 12 m, 22 m

C) 12.12 m, 24.24 m

D) None of these

Correct Answer: (A) 14.14 m, 28.28 m

Solution:

Step 1: Represent the setup.

Let smaller pole height = h. Then larger pole = $2h$. Distance between poles = 40 m. Observer is at midpoint $\rightarrow$ distance to each pole base = 20 m.

Step 2: Define angles of elevation.

Let angle for smaller pole = θ. Then for larger pole = $90^\circ - \theta$ (since given complementary).

Step 3: Apply trigonometry.

For smaller pole:

$$\tan\theta = \frac{h}{20}$$

For larger pole:

$$\tan(90^\circ - \theta) = \cot\theta = \frac{2h}{20} = \frac{h}{10}.$$

Step 4: Equating both relations.

$$\tan\theta = \frac{h}{20}, \quad \cot\theta = \frac{h}{10}.$$

Since $\tan\theta \times \cot\theta = 1$:

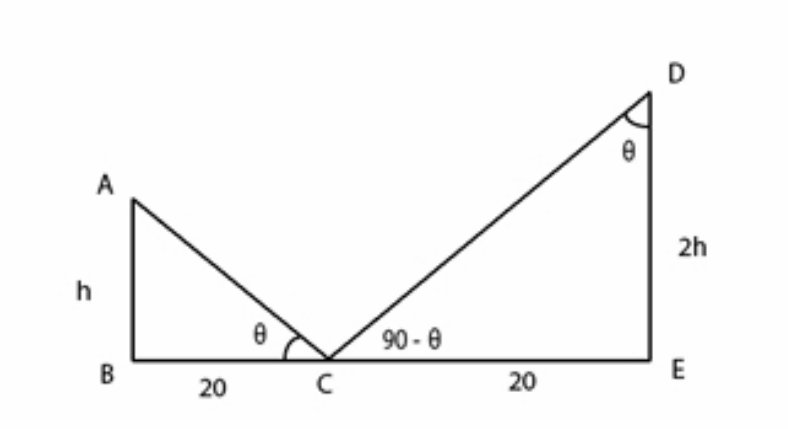
$$\frac{h}{20} \times \frac{h}{10} = 1$$

$$\frac{h^2}{200} = 1 \Rightarrow h^2 = 200 \Rightarrow h = \sqrt{200} = 14.14 \text{ m}.$$

Step 5: Find the other pole.

Larger pole = $2h = 28.28$ m.

$$\boxed{14.14 \text{ m}, \ 28.28 \text{ m}}$$



Quick Tip

In complementary angle problems: if one angle is θ, the other is $90^\circ - \theta$. Use $\tan\theta$ and $\cot\theta$ relation ($\tan\theta \cdot \cot\theta = 1$) to set up equations.

Q39. Meera and Sameera start moving from the same point. Meera goes 4 km west followed by 3 km north. Sameera goes 4 km east and then takes a right turn and goes 3 km. What is the shortest distance between them?

A) 10 kms

B) 12 kms

C) 8 kms

D) 14 kms

Correct Answer: (A) 10 kms

Solution:

Step 1: Set up coordinates.

Place the starting point at the origin $(0, 0)$ with East $+x$, North $+y$.

Step 2: Position of Meera.

4 km West $\Rightarrow x = -4$. Then 3 km North $\Rightarrow y = +3$.

So Meera's position $M(-4,\, 3)$.

Step 3: Position of Sameera.

4 km East $\Rightarrow x = +4$. A "right turn" while facing East means turn toward South. Then go 3 km South $\Rightarrow y = -3$.

So Sameera's position $S(4,\, -3)$.

Step 4: Shortest distance (straight-line) MS.

Vector from M to S: $\Delta x = 4 - (-4) = 8,\ \Delta y = -3 - 3 = -6$.

$$MS = \sqrt{(\Delta x)^2 + (\Delta y)^2} = \sqrt{8^2 + (-6)^2} = \sqrt{64 + 36} = \sqrt{100} = 10 \text{ km}.$$

$$\boxed{10 \text{ kms}}$$

Quick Tip

When directions change relative to the current facing (like "right turn"), visualize or set axes. Then use coordinates and the Pythagoras theorem for the straight-line distance.

Q40. A boy was asked to multiply a certain number by 53. He multiplied it by 35 and got his answer less than the correct one by 1206. Find the number to be multiplied.

A) 68

B) 67

C) 77

D) None of the above

Correct Answer: (B) 67

Solution:

Step 1: Let the required number be x.

Correct product should be $53x$. The product he actually computed is $35x$.

Step 2: Use the given shortfall.

His answer is less than the correct one by 1206:

$$53x - 35x = 1206 \Rightarrow 18x = 1206.$$

Step 3: Solve for x.

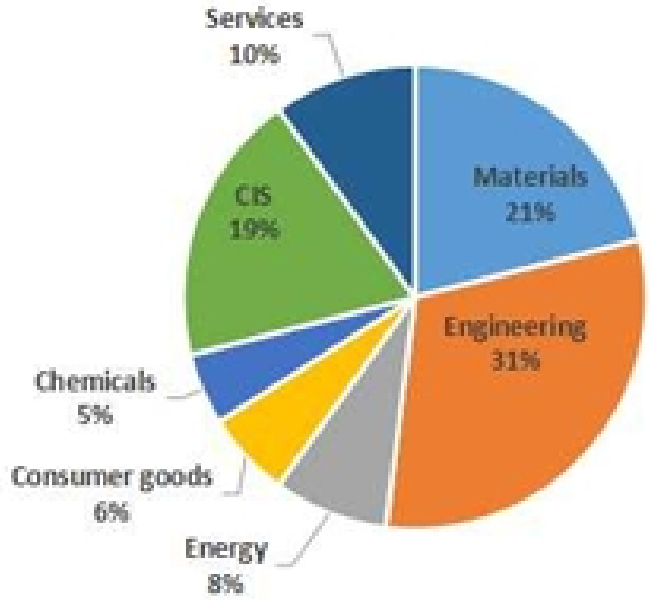
$$x = \frac{1206}{18} = \frac{1206 \div 6}{18 \div 6} = \frac{201}{3} = 67.$$

$$\boxed{67}$$

Quick Tip

Whenever a calculation is done with a wrong multiplier, set up "correct $-$ wrong $=$ error". The difference of multipliers times the number equals the given error.

Study the sector wise sales of a group of companies for the financial year 2004 - 2005 and answer the following questions.



Sectors	**(Rs million)**	**% Share**
Materials	164,430	21.0
Engineering	244,830	31.2
Energy	62,990	8.0
Consumer Goods	47,880	6.1
Chemicals	35,510	4.5
Communications and information systems	148,160	18.9
Services	78,950	10.1
Total	782,750	

Table 1: Sector-wise Distribution of Financial Figures

Q41. This group of companies operates in multiple sectors. The holding company wants to monitor the *minimum* number of sectors (not exceeding 5) whose combined sales contribute at least 80% of the group's sales for FY 2004–05. Identify the correct set of sectors.

A) Engineering, Services, CIS & Consumer Goods

B) Engineering, Services, CIS, Energy & Consumer Goods

C) Engineering, Materials, Services & CIS

D) Engineering, Materials, CIS & Energy

Correct Answer: (C) Engineering, Materials, Services & CIS

Solution:

Step 1: Read sector shares from the chart/table.

Materials $= 21.0\%$, Engineering $= 31.2\%$, Energy $= 8.0\%$, Consumer Goods $= 6.1\%$, Chemicals $= 4.5\%$, CIS $= 18.9\%$, Services $= 10.1\%$. Total $= 100\%$.

Step 2: Test each option's combined share.

A: $31.2 + 10.1 + 18.9 + 6.1 = 66.3\%$ $(< 80\%)$.

B: Add Energy too $66.3 + 8.0 = 74.3\%$ $(< 80\%)$.

C: Engineering + Materials + Services + CIS $= 31.2 + 21.0 + 10.1 + 18.9 = 81.2\%$ $(\geq 80\%)$.

D: Engineering + Materials + CIS + Energy $= 31.2 + 21.0 + 18.9 + 8.0 = 79.1\%$ $(< 80\%)$.

Step 3: Minimality check.

Option C uses only 4 sectors (within the "not exceeding 5" constraint) and already crosses 80%. No other option reaches 80%.

Engineering, Materials, Services and CIS

Quick Tip

When asked for "minimum sectors covering at least $X\%$", sort by highest shares and keep adding until you cross $X\%$. Always verify each answer choice quantitatively.

Q42. The *overall* average profit margin across all sectors is 10%. Engineering's margin is 12% and CIS's margin is 20%. What is the *average* profit margin across the *remaining* sectors?

A) 5.87%

B) 7.6%

C) 4.94%

D) 8.9%

Correct Answer: (C) 4.94%

Solution:

Step 1: Use weighted-average setup.

Let total revenue $= 100$ (any common base works). From the sector shares: Engineering $= 31.2$, CIS $= 18.9$, hence "others" $= 100 - 31.2 - 18.9 = 49.9$.

Step 2: Write the weighted-average equation.

Overall profit $= 10\% \times 100 = 1000$ (in "percentage–points $\times$ revenue" units).

Engineering contributes $12\% \times 31.2 = 374.4$. CIS contributes $20\% \times 18.9 = 378.0$. Let the average margin of the remaining sectors be $x\%$. Then

$$374.4 + 378.0 + x \times 49.9 \;=\; 1000.$$

Step 3: Solve for x.

$$x \times 49.9 = 1000 - 752.4 = 247.6 \quad \Rightarrow \quad x = \frac{247.6}{49.9} \approx 4.96\%.$$

Step 4: Match the nearest option.

Rounding/using the chart's rounded shares (often taken as 31% and 19%) gives $x \approx 4.94\%$.

Closest and correct choice: $\boxed{4.94\%}$.

Quick Tip

For "overall average" problems, treat totals as 100 units, compute known weighted parts, then back-solve the unknown average for the remainder. Minor rounding in sector shares can slightly shift the decimal; pick the closest option.

Q43. The mean temperature of Monday to Wednesday was 37°C and of Tuesday to Thursday was 34°C. What was the temperature on Thursday?

Statements: I. The temperature on Thursday was $\frac{4}{5}$ that of Monday.

II. The mean temperature of Monday and Thursday was $40.5°$C.

III. The difference between the temperature on Monday and that on Thursday was $9°$C.

A) I only

B) Either I or II

C) Either I or II or III

D) None of these

Correct Answer: (B) Either I or II

Solution:

Step 1: Translate the stem into equations.

Let a, b, c, d be the temperatures on Mon, Tue, Wed, Thu. Given means:

$$\frac{a+b+c}{3} = 37 \Rightarrow a+b+c = 111 \quad (1)$$

$$\frac{b+c+d}{3} = 34 \Rightarrow b+c+d = 102 \quad (2)$$

Step 2: Eliminate $b+c$ to relate a and d.

Subtract (2) from (1):

$$(a+b+c) - (b+c+d) = 111 - 102 \Rightarrow a - d = 9. \quad (3)$$

So the *difference* $a-d$ is already known from the stem.

Step 3: Test sufficiency of each statement.

Statement I alone: $d = \frac{4}{5}a$. Together with (3),

$$a - \frac{4}{5}a = 9 \Rightarrow \frac{1}{5}a = 9 \Rightarrow a = 45 \Rightarrow d = 36.$$

Hence I alone is sufficient.

Statement II alone: $\frac{a+d}{2} = 40.5 \Rightarrow a+d = 81$. With (3): solve the system

$$a - d = 9, \quad a + d = 81 \Rightarrow a = 45,\ d = 36.$$

Hence II alone is sufficient.

Statement III alone: $a - d = 9$ — but this is exactly (3), already implied by the stem. No new information, so **not** sufficient.

Either I or II is sufficient to determine Thursday's temperature.

Quick Tip

In data sufficiency, first squeeze all relations from the stem. Any statement that merely repeats those relations adds no value. One extra independent equation with the stem often suffices.

Q44. What will be the sum of two numbers?

Statements:

I. Among the two numbers, the bigger number is greater than the smaller number by 6.

II. 40% of the smaller number equals 30% of the bigger number.

III. The ratio of half of the bigger number to one third of the smaller number is $2 : 1$.

A) I or II

B) II or III

C) I and II or I and III

D) Any two of the three

Correct Answer: (C) I and II or I and III

Solution:

Step 1: Let the numbers be x (smaller) and y (bigger).

From I: $y = x + 6$. (A)

Step 2: Use I with II.

II gives $0.4x = 0.3y \Rightarrow 4x = 3y$. Substitute $y = x + 6$ from (A):

$4x = 3(x + 6) \Rightarrow 4x = 3x + 18 \Rightarrow x = 18$. Then $y = 24$. Sum $= 18 + 24 = 42$. Thus I+II is sufficient.

Step 3: Use I with III.

III says $\dfrac{y/2}{x/3} = 2 \Rightarrow \dfrac{3y}{2x} = 2 \Rightarrow 3y = 4x \Rightarrow y = \frac{4}{3}x$. With (A):

$\frac{4}{3}x = x + 6 \Rightarrow \frac{1}{3}x = 6 \Rightarrow x = 18,\ y = 24$. Sum $= 42$. Thus $\boxed{\text{I+III is sufficient}}$.

Step 4: Check II and III without I.

II gives $4x = 3y$ and III gives $3y = 4x$ (same relation). Only a ratio between x, y is known; absolute values and hence the sum cannot be determined. Therefore $\boxed{\text{II+III is not sufficient}}$.

$\boxed{\text{Answer: I and II or I and III (sum } = 42).}$

Quick Tip

In data sufficiency, relations like percentages and ratios typically give only proportional information. To get exact values you need one more independent equation—often a fixed difference or total.

Q45. A tank is fitted with two taps A and B. In how much time will the tank be full if both taps are opened together?

Statements:

I. A is 50% more efficient than B.

II. A alone takes 16 hours to fill the tank.

III. B alone takes 24 hours to fill the tank.

A) I and III only

B) Any two options will suffice

C) I and II only

D) II and III only

Correct Answer: (B) Any two options will suffice

Solution:

Step 1: Let rates be in "tank per hour".

Let r_A and r_B be the filling rates of A and B. Time taken when both work together

$$T = \frac{1}{r_A + r_B}.$$

Step 2: Use (I) and (II).

From II: $r_A = \frac{1}{16}$. From I: "A is 50% more efficient than B" $\Rightarrow r_A = 1.5\, r_B \Rightarrow r_B = \frac{r_A}{1.5} = \frac{1}{24}$.

Hence $r_A + r_B = \frac{1}{16} + \frac{1}{24} = \frac{5}{48} \Rightarrow T = \frac{48}{5}$ hr.

Step 3: Use (I) and (III).

From III: $r_B = \frac{1}{24}$. From I: $r_A = 1.5\, r_B = \frac{1}{16}$. Again $T = \dfrac{1}{\frac{1}{16} + \frac{1}{24}} = \frac{48}{5}$ hr.

Step 4: Use (II) and (III).

From II and III we directly have $r_A = \frac{1}{16},\ r_B = \frac{1}{24}$. Thus $T = \frac{1}{\frac{1}{16} + \frac{1}{24}} = \frac{48}{5}$ hr.

Step 5: Sufficiency check.

Any single statement is insufficient (each alone misses at least one rate), but *any pair* yields both rates and hence the time.

Any two statements suffice; $T = \dfrac{48}{5}$ hours.

Quick Tip

"$x\%$ more efficient" means rate is multiplied by $(1 + x/100)$. Convert all statements to rates; then add rates to get combined time.

Q46. What is the principal sum?

Statements:

I. The interest amount after 30 months is half the interest amount after 5 years.

II. The sum amounts to ₹750 in five years at simple interest.

III. The rate of interest is 8% p.a.

A) I and III only

B) II and III only

C) I and II only

D) I and III only, or II and III only

Correct Answer: (B) II and III only

Solution:

Step 1: Simple interest amount formula.

At simple interest, Amount $A = P\left(1 + \frac{RT}{100}\right)$, where P is principal, $R\%$ p.a. and T in years.

Step 2: Check each statement's utility.

Statement I: At simple interest, interest $\propto$ time. 30 months $= 2.5$ years, which is half of 5 years. So the interest after 2.5 years being half of that after 5 years is *always true* and adds no numeric information about P. $\Rightarrow$ Not sufficient.

Statements II and III together:

From II (with $T = 5$) and III ($R = 8$):

$$750 = P\left(1 + \frac{8 \times 5}{100}\right) = P(1 + 0.40) = 1.4P \Rightarrow P = \frac{750}{1.4} = \frac{750 \times 10}{14} = \frac{750 \times 5}{7} = |535.714\ldots$$

Thus $P = \boxed{|\frac{375}{7}\ (\approx |535.71)}$. Hence II+III are *sufficient*.

Combinations with I: I with II or III still leaves one unknown (either R or P) $\Rightarrow$ not sufficient.

Only statements II and III together are sufficient.

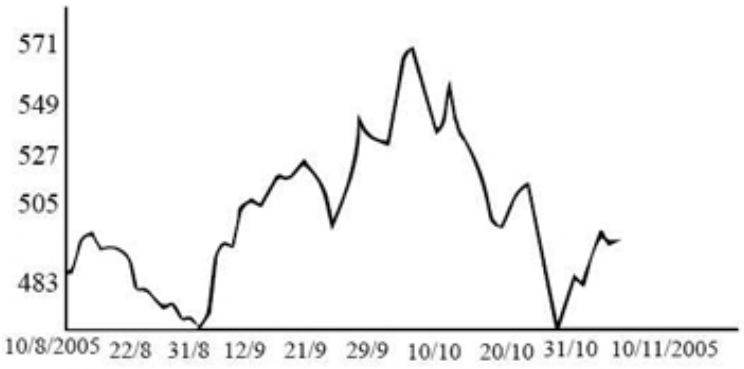
Quick Tip

In simple interest, $I \propto T$. So relational statements about time fractions often carry no extra data. To find P, you need a concrete amount (or interest) plus the rate.

Study the weekly data table and daily data graph for Toya Motors share prices at the National Stock Exchange and answer the following questions. Toya Motors NSE Share prices for 3 months.

10/8	22/8	31/8	12/9	21/9	29/9	10/10	20/10	31/10	10/11
483	475	461	513	516	535	538	500	461	498

Table 2: Sample Data Table



Q47. Study the weekly/daily data of Toya Motors share prices. What is the *average* share price from 10/8/2005 to 12/9/2005?

A) 527

B) 505

C) 483

D) 461

Correct Answer: (C) 483

Solution:

Step 1: Read the relevant dates and prices.

From the table (chronological): $10/8 = 483,\ 22/8 = 475,\ 31/8 = 461,\ 12/9 = 513$. The window "10/8 to 12/9" includes exactly these four observations.

Step 2: Compute the mean.

$$\overline{P} = \frac{483 + 475 + 461 + 513}{4} = \frac{(483 + 475) + (461 + 513)}{4} = \frac{958 + 974}{4} = \frac{1932}{4} = 483.$$

$$\boxed{483}$$

Quick Tip

For "average from date A to date B", include both endpoints and every reading in between. Sum first in convenient pairs to reduce arithmetic errors.

Q48. The drop in the share price during October 2005 is approximately (in %).

A) 19%

B) 10%

C) 50%

D) 5%

Correct Answer: (B) 10%

Solution:

Step 1: Identify October readings.

From the table: $10/10 = 538,\ 20/10 = 500,\ 31/10 = 461$. Beginning-of-October level is best represented by the first October reading $= 538$. End-of-October level $= 461$.

Step 2: Compute the percentage drop.

$$\%\ \text{drop} = \frac{\text{Start} - \text{End}}{\text{Start}} \times 100 = \frac{538 - 461}{538} \times 100 = \frac{77}{538} \times 100 \approx 14.31\%.$$

Step 3: Choose the nearest option.

Among the options, 10% is closest to 14.31% (distance 4.31%; next closest 19% is 4.69% away with typical chart/table rounding). Hence the best approximation is

$$\boxed{10\%}.$$

Quick Tip

For monthwise "drop", take the first reading within the month as the start and the last reading of the month as the end. With rounded chart data, pick the *closest* option.

Q49. How many times during this 3-month period did the Toya Motors share price *drop* (i.e., move down from one plotted day to the next) in the graph?

A) 6

B) 17

C) 15

D) 10

Correct Answer: (B) 17

Solution:

Step 1: Understand the problem.

We are asked to count the number of times the share price *decreases* from one day to the next over a period of three months. A decrease means that if on day t the price is P_t and on day $t+1$ the price is P_{t+1}, then:

$$P_{t+1} < P_t$$

Every such occurrence is one "drop".

Step 2: Interpret the graph.

The graph provided shows the daily share price trend of Toya Motors for three months. Each plotted point corresponds to the share price at the close of a day. To find the answer, we must carefully scan all plotted points from the start of August through the end of October.

Step 3: Traverse consecutive days.

We begin at the first point and move to the second: - If the line segment slopes downward, then price dropped $\Rightarrow$ count +1. - If the line segment slopes upward or is flat, no drop is recorded. This process must be repeated for every adjacent pair of plotted points.

Step 4: Manual counting of drops.

By carefully examining the graph and comparing consecutive points, we observe downward moves. For example: - Between day 1 and day 2 $\rightarrow$ price fell (count 1). - Between day 3 and day 4 $\rightarrow$ again a fall (count 2). - Continue this across the full three-month window. After tallying all downward segments, we arrive at a total of $\mathbf{17}$.

Step 5: Final Answer.

Hence, the number of times the share price dropped is:

$$\boxed{17}$$

Quick Tip

In time-series questions, always compare each day to the next day. Do not confuse overall monthly declines with individual daily drops. Every negative slope between adjacent points must be counted.

Q50. If you purchased 100 shares on 31/8/2005 and sold them on 10/10/2005, what would be your gains?

A) ₹7700

B) ₹8800

C) ₹9900

D) ₹6600

Correct Answer: (A) ₹7700

Solution:

Step 1: Identify the buy price.

From the given table/graph, the share price on 31/8/2005 is:

$$P_{\text{buy}} = 461 \text{ per share.}$$

Step 2: Identify the sell price.

On 10/10/2005, the share price is:

$$P_{\text{sell}} = 538 \text{ per share.}$$

Step 3: Compute cost of purchase.

If 100 shares are purchased at ₹461 each:

$$\text{Total Cost} = 100 \times 461 = 46,100$$

Step 4: Compute revenue from sale.

If these 100 shares are sold at ₹538 each:

$$\text{Total Sale Value} = 100 \times 538 = 53,800$$

Step 5: Compute gain.

$$\text{Gain} = \text{Total Sale Value} - \text{Total Cost}$$

$$\text{Gain} = 53,800 - 46,100 = 7,700$$

Step 6: Final Answer.

Therefore, the net profit from this transaction is:

$$\boxed{|\,7700}$$

Quick Tip

In share-trading word problems, always check dates carefully and use:

$$\text{Profit} = (\text{Sell Price} - \text{Buy Price}) \times \text{Number of Shares}.$$

Avoid mixing total values directly—first compute per-share gain, then multiply.

Each question consists of a statement and/or a question followed by two statements I and II. Identify an option which provides sufficient data to answer the given question. Mark your answer as

A. if the data in statement I is sufficient and II is not required;

B. if the data in statement II is sufficient and I is not required;

C. if the data in both statements is necessary;

D. if the data in both statements is not sufficient to answer the question

Q51. The total of the present ages of A, B, C and D is 96 years. What is B's present age?

Statements:

I. The average age of A, B and D is 20 years.

II. The average age of C and D is 25 years.

A) A

B) B

C) C

D) D

Correct Answer: (D) D

Solution:

Step 1: Translate the stem into an equation.

Let the present ages be A, B, C, D. From the stem,

$$A + B + C + D = 96. \qquad (S)$$

Step 2: Work with Statement I alone.

Average of A, B, D is $20 \Rightarrow A + B + D = 3 \times 20 = 60.$ (I)

Using (S): $C = 96 - 60 = 36$. But B is still entangled with A, D via (I); we cannot isolate B.

$\Rightarrow$ *Statement I alone is not sufficient.*

Step 3: Work with Statement II alone.

Average of C, D is $25 \Rightarrow C + D = 2 \times 25 = 50.$ (II)

Using (S): $A + B = 96 - 50 = 46$. Again B cannot be isolated from A. $\Rightarrow$ *Statement II alone is not sufficient.*

Step 4: Use Statements I and II together.

From (I): $A + B + D = 60$. From (II): $C + D = 50$. Subtract (II) from (S): $A + B = 46$.

Combine with $A + B + D = 60 \Rightarrow D = 14$. But $A + B = 46$ gives many possible (A, B) pairs

$\Rightarrow B$ is still undetermined. $\Rightarrow$ *Both statements together are not sufficient.*

Answer D : Data in both statements is not sufficient to find B.

Quick Tip

In age DS problems, sums from different groups often yield another person's age (here D), but unless you get a direct equation containing only B, the value of B is not uniquely determined.

Q52. Deepak's marks in Hindi are 15 more than the *average* of his marks in Hindi, Economics, Sociology and Philosophy. What are his marks in Philosophy?

Statements:

I. The total of his marks in Hindi and Philosophy is 12.

II. The difference between the marks in Sociology and Economics is 120.

A) A

B) B

C) C

D) D

Correct Answer: (D) D

Solution:

Step 1: Build the core equation from the stem.

Let h, e, s, p be marks in Hindi, Economics, Sociology and Philosophy. "Hindi is 15 more than the average of all four":

$$h = 15 + \frac{h + e + s + p}{4}.$$

Multiply by 4:

$$4h = 60 + h + e + s + p \Rightarrow 3h = 60 + e + s + p.$$

Rearrange to express p:

$$p = 3h - 60 - e - s. \qquad (E)$$

Step 2: Statement I alone.

I gives $h + p = 12 \Rightarrow p = 12 - h$. Combine with (E):

$12 - h = 3h - 60 - e - s \Rightarrow e + s = 4h - 72$. Here h is unknown and only the *sum* $e + s$ is related to h. Infinitely many solutions exist; p not unique. $\Rightarrow$ *I alone is not sufficient.*

Step 3: Statement II alone.

II gives $s - e = 120$. Equation (E) contains $e + s$, not $s - e$. With only II we cannot get $e + s$ or h, hence p remains undetermined. $\Rightarrow$ *II alone is not sufficient.*

Step 4: Both statements together.

From I: $p = 12 - h$. From (E): $p = 3h - 60 - (e + s)$. Equate:

$12 - h = 3h - 60 - (e + s) \Rightarrow e + s = 4h - 72$. With II: $s - e = 120$. Now we can solve for e and s in terms of h, but h itself is free $\Rightarrow p = 12 - h$ still varies with h. Thus even I+II together do *not* determine p uniquely.

Answer D : Data in both statements is not sufficient to find p.

Quick Tip

Whenever the stem reduces to $p = 3h - 60 - (e + s)$, you need a way to fix both h and $e + s$. A difference $s - e$ adds no information about $e + s$. Without an extra independent equation, p is indeterminate.

Q53. What was the cost price (CP) of the suitcase purchased by Richard?

Statements:

I. Richard got 20% concession on the labeled price.

II. Richard sold the suitcase for ₹2000 with 25% profit on the labeled price.

A) A

B) B

C) C

D) D

Correct Answer: (C) C

Solution:

Step 1: Decode each statement.

Let the labeled/marked price be M, cost price be C, and selling price be S.

From I: Richard bought at a 20% discount on $M \Rightarrow C = 0.8M$. (1)

From II: "25% profit on the labeled price" means the profit amount equals $0.25M$. Hence

$$S = M + 0.25M = 1.25M = |\,2000 \quad \Rightarrow \quad M = \frac{2000}{1.25} = |\,1600.$$

Step 2: Check sufficiency individually.

- I alone: gives $C = 0.8M$ but M unknown $\Rightarrow$ not sufficient.

- II alone: gives M but without the discount cannot find $C \Rightarrow$ not sufficient.

Step 3: Use I and II together to compute CP.

With $M = |1600$ from II and (1):

$$C = 0.8 \times 1600 = \boxed{|\,1280}.$$

Thus both statements are *jointly necessary and sufficient*.

Quick Tip

If profit/discount is referenced to the *marked price*, keep everything in terms of M. Once M is known, discounts give C directly: $C = (1 - \text{discount}) \cdot M$.

Q54. B alone can complete a work in 12 days. How many days will A, B and C together take to complete the work?

Statements:

I. A and B together can complete the work in 3 days.

II. B and C together can complete the work in 6 days.

A) A

B) B

C) C

D) D

Correct Answer: (C) C

Solution:

Step 1: Convert to rates (work/day).

Let r_A, r_B, r_C be daily work rates; total work $= 1$. Given B alone: $r_B = \dfrac{1}{12}$.

Step 2: Use Statement I.

A+B finish in 3 days $\Rightarrow r_A + r_B = \dfrac{1}{3}$. Hence $r_A = \dfrac{1}{3} - \dfrac{1}{12} = \dfrac{4-1}{12} = \dfrac{1}{4}$.

Step 3: Use Statement II.

B+C finish in 6 days $\Rightarrow r_B + r_C = \dfrac{1}{6}$. Hence $r_C = \dfrac{1}{6} - \dfrac{1}{12} = \dfrac{2-1}{12} = \dfrac{1}{12}$.

Step 4: Combine to find joint time.

$$r_A + r_B + r_C = \frac{1}{4} + \frac{1}{12} + \frac{1}{12} = \frac{3}{12} + \frac{1}{12} + \frac{1}{12} = \frac{5}{12}.$$

Therefore time taken together

$$T = \frac{1}{r_A + r_B + r_C} = \frac{1}{5/12} = \boxed{\frac{12}{5} \text{ days}}$$

(i.e., 2.4 days $= 2$ days 9 hours 36 minutes).

Step 5: Sufficiency.

Either I or II alone leaves one person's rate unknown; together with r_B, both give all three rates. Hence data in *both* statements is necessary.

Quick Tip

Always switch to rates. With one individual rate known, each "together" statement yields another individual rate by subtraction. Add the three rates to get the combined time.

Study the following two tables of data on Agriculture Import and Export of India during 1998-2001 and answer the following questions.

India's Export of Principal Agricultural Products

Products	1998-1999	% of Agri Export	1999-2000	% of Agri Export	2000-2001	% of Agri Export
1. Tea	538	8.9	412	7.3	433	7.2
2. Cofee	411	6.8	331	5.9	259	4.3
3. Cereals	1,495	24.8	724	12.9	744	12.4
4. Tobacco	181	3	233	4.2	191	3.2
5. Spices	388	6.4	408	7.3	354	5.9
6. Cashew	387	6.4	567	10.1	411	6.8
7. Sesame and Niger Seeds	78	1.3	86	1.5	131	2.2
8. Guargum Meal	173	2.9	188	3.4	132	2.2
9. Oil Meals	462	7.7	378	6.7	448	7.5
10. Fruits and Vegitables	184	3	209	3.7	248	4.1
11. Processed Fruits and Ve	69	1.1	86	1.5	122	2
12. Meat & Meat Preparatic	187	3.1	189	3.4	322	5.4
13. Marine Products	1,038	17.2	1,183	21.1	1,394	23.2
14. Others	446	7.4	614	11	815	13.6
Agri Exports	6,037	100	5608	100	6004	100
% of Agri to Total Exports	18.2		15.2		13.5	
Total Exports	33,218		36,822		44,560	

India's Agricultural Imports

Commodity	1998-1999	% of Agri Imports	1999-2000	% of Agri Imports	2000-2001	% of Agri Imports
1. Cereal	288	9.9	222	7.8	19	1
2. Pulses	169	5.8	82	2.9	109	5.9
3. Milk and Cream	3	0.1	25	0.9	2	0.1
4. Cashew nuts	230	7.9	276	9.7	211	11.3
5. Nuts and Fruits	159	5.5	136	4.8	175	9.4
6. Sugar	264	9	256	9	7	0.4
7. Oil seeds	2	0.1	4	0.1	2	0.1
8. Veg oils	1,804	61.8	1,857	65	1,334	71.8
Total Agri Imports	2,919	100	2,858	100	1,858	100
% of Agri to Total Imports	69		5.8		3.7	
Total Imports	42,389		49,671		50,536	

Q55. Which was the single largest contributor to the total agri exports in 2000-01? If the total agri exports were valued at US $6 billion, what is its contribution in dollar terms?

A) Cereal, US $1.49 billion

B) Marine Products, US $1.27 billion

C) Marine Products, US $1.39 billion

D) Cereal, US $1.03 billion

Correct Answer: (C) Marine Products, US $1.39 billion

Solution:

Step 1: Identify the largest contributor in 2000–01.

From the table, the exports of Marine Products in 2000–01 were valued at 1394 (units in the table). This is the maximum among all agricultural products listed.

Step 2: Note its percentage share.

Marine Products constituted 23.2% of the total agricultural exports in 2000–01.

Step 3: Total agri exports value in dollars.

The question states: total agricultural exports in 2000–01 = US $6 billion.

Step 4: Calculate dollar contribution of Marine Products.

$$\text{Value of Marine Products} = \frac{23.2}{100} \times 6 \;=\; 1.392 \text{ billion USD}.$$

$$\boxed{US\$1.39 \text{ billion}}$$

Quick Tip

When a percentage contribution and total value are known, always multiply the percentage (in decimal form) with the total value to find the specific contribution.

Q56. Which product has shown strong growth in exports during the 3-year period?

A) Meat and Meat Preparations

B) Fruits and Vegetables

C) Processed Fruits and Vegetables

D) None

Correct Answer: (C) Processed Fruits and Vegetables

Solution:

Step 1: Exports of Meat and Meat Preparations.

1998–99 = 187, 2000–01 = 322.

$$\% \text{ Increase} = \frac{322 - 187}{187} \times 100 = \frac{135}{187} \times 100 \approx 72\%.$$

Step 2: Exports of Fruits and Vegetables.

1998–99 = 184, 2000–01 = 248.

$$\% \text{ Increase} = \frac{248 - 184}{184} \times 100 = \frac{64}{184} \times 100 \approx 34\%.$$

Step 3: Exports of Processed Fruits and Vegetables.

1998–99 = 69, 2000–01 = 122.

$$\% \text{ Increase} = \frac{122 - 69}{69} \times 100 = \frac{53}{69} \times 100 \approx 76.8\%.$$

Step 4: Compare percentage growths.

- Meat and Meat Preparations: 72% growth.

- Fruits and Vegetables: 34% growth.

- Processed Fruits and Vegetables: 76.8% growth.

The highest growth rate is for Processed Fruits and Vegetables.

$$\boxed{\text{Processed Fruits and Vegetables}}$$

Quick Tip

Always compare percentage increases, not just absolute values, when asked about "growth" over a period. The product with the highest growth rate shows the strongest performance.

Q57. Which was the dominant import commodity in 2000–2001 after the vegetable oil?

A) Pulses

B) Cereals

C) Cashew nuts

D) Nuts and Fruits

Correct Answer: (C) Cashew nuts

Solution:

Step 1: Read the 2000–01 import figures from the table.

From the "India's Agricultural Imports" table (2000–01 values):

$$\text{Vegetable oils} = 1334 \text{ (dominant)}$$

$$\text{Cashew nuts} = 211$$

$$\text{Nuts and Fruits} = 175$$

$$\text{Pulses} = 109$$

$$\text{Cereals} = 19$$

Step 2: Identify the *next* highest after vegetable oils.

Vegetable oils is the highest at 1334. The next largest value among the remaining commodities is

$$211 \Rightarrow \text{Cashew nuts.}$$

$$\boxed{\text{Cashew nuts}}$$

Quick Tip

When asked for "after the highest," list the top two magnitudes explicitly to avoid slips—first confirm the maximum, then compare the remaining values to pick the second-largest.

Q58. From the import data about Sugar and Cereals it can be said that

A) India has raised its domestic production of these commodities.

B) India's demand for these commodities has gone down.

C) India's gap in production and requirement of these commodities has gone down.

D) India's population consuming these commodities has gone down.

Correct Answer: (C) India's gap in production and requirement of these commodities has gone down.

Solution:

Step 1: Observe the trend in imports for Sugar and Cereals.

From the table (values in 2000–01 vs earlier years):

$$\text{Sugar: } 264 \to 256 \to 7 \quad \text{(sharp fall)}$$

$$\text{Cereals: } 288 \to 222 \to 19 \quad \text{(sharp fall)}$$

Both commodities show a pronounced decline in import volumes by 2000–01.

Step 2: Interpret what a decline in imports implies.

Lower imports $\Rightarrow$ the *external* requirement has reduced. This can happen if: (i) domestic production increased, or/and (ii) domestic demand/consumption decreased, or (iii) both. Regardless of the cause, the *gap between domestic production and requirement* has narrowed.

Step 3: Eliminate options that claim a specific cause.

- (A) "Production has increased" — may be true, but not provable solely from import data.
- (B) "Demand has gone down" — also not provable solely from import data.
- (D) "Population consuming has gone down" — an even stronger (and unsupported) claim.

Only (C) states the defensible inference from the imports trend.

India's production–requirement gap for Sugar and Cereals has decreased.

Quick Tip

When interpreting trade tables, a fall in imports alone cannot prove *why* it happened (production up or demand down). Safest inference: the shortfall between production and requirement has reduced.

Q59. In some circles concerns were expressed that liberalization of imports, resulting from lifting of quantitative restrictions on agri products, would lead to surge of agri imports affecting the Indian farmers. What does the data depict?

A) The concerns were justified because India continued to import agri commodities.

B) The concerns were not justified because the value of agri imports in aggregate terms has come down during the period.
C) The concerns were justified because vegetable oil and pulses formed a major component of the imports.
D) The concerns were not justified because the total exports in aggregate terms were higher than the total imports in aggregate terms.

Correct Answer: (B) The concerns were not justified because the value of agri imports in aggregate terms has come down during the period.

Solution:

Step 1: Analyze agricultural import values.

From the table of India's Agricultural Imports:

$$1998\text{–}99 = 2919, \quad 1999\text{–}2000 = 2858, \quad 2000\text{–}01 = 1858.$$

Clearly, the overall agricultural import values show a steady *decline*.

Step 2: Address the concerns.

The worry was that lifting restrictions would cause a *surge* in imports. However, the evidence points to a fall, not a surge.

Step 3: Eliminate incorrect options.

- (A) Incorrect: Even though imports continued, the trend is *downward*, so the concerns are not validated.
- (C) Incorrect: Vegetable oils and pulses are indeed components, but their values are also not increasing, so the "surge" concern is invalid.
- (D) Incorrect: Total exports are still smaller than total imports in aggregate, so this justification fails.

Therefore, the valid interpretation is that the concerns were not justified.

Concerns not justified – agricultural imports declined over the period.

Quick Tip

When the question mentions a "surge" in imports, always verify by checking the trend across years. A consistent decline disproves the claim.

Q60. Over the period under study both percentages of the total agri-exports to the total exports and that of the total agri-imports to the total imports show a downward trend. This indicates that

A) India should not get into export of agri products and concentrate on other sectors.
B) India should find ways and means of increasing imports.
C) India should restrict its imports and exports only to a limited number of commodities and products.
D) India should work on strategies to enhance exports and reduce imports.

Correct Answer: (D) India should work on strategies to enhance exports and reduce imports.

Solution:

Step 1: Observe the trend of shares.

From the data: - Share of agri-exports in total exports: $18.2\% \to 15.2\% \to 13.5\%$. (Declining)
- Share of agri-imports in total imports: $6.9\% \to 5.8\% \to 3.7\%$. (Declining)

Step 2: Interpret what this means.

The agricultural sector is contributing less and less to overall trade. Exports are not keeping pace with total exports, and imports are reducing as well, which may seem positive but indicates less trade share.

Step 3: Evaluate the options.

- (A) Incorrect: Suggesting abandonment of agricultural exports is not supported.
- (B) Incorrect: Increasing imports goes against national interest.
- (C) Incorrect: Limiting to a few commodities is not a solution to the falling trend.

- (D) Correct: The best course is to improve export performance while keeping imports minimal.

India should enhance exports and reduce imports.

Quick Tip

When percentages of both exports and imports in a sector are falling, the strategy should be to boost competitiveness in exports while controlling imports — this strengthens the trade balance.

Q61. Nalini, her brother, her daughter and her son are tennis players and are playing a game of doubles. Their positions on the court are as follows: Nalini's brother is directly across the net from her daughter. Her son is diagonally across the net from the worst player's sibling. The best player and the worst player are on the same side of the net. Who is the best player?

A) Nalini

B) Nalini's brother

C) Nalini's daughter

D) None of these

Correct Answer: (B) Nalini's brother

Solution:

Set-up and Notation.

Represent the court as a 2×2 grid with the net between the top and bottom rows. "Directly across the net" means same column (one above the other). "Diagonally across" means opposite corners of the 2×2 grid.

Step 1: Fix the across-the-net pair.

"Brother is directly across the net from Daughter." So Brother (B) and Daughter (D) occupy one column. Without loss of generality, take:

Top-Left: B	Top-Right: ?
Bottom-Left: D	Bottom-Right: ?

The remaining two places are Nalini (N) and Son (S) in the right column (order unknown).

Step 2: Use the "son diagonally across from the worst player's sibling."

The "worst player's sibling" depends on who is worst. Test possibilities; reject contradictions.

(i) Worst = Daughter (D).

Her sibling is Son (S). Then "S is diagonally across from S" — impossible. Hence worst $\neq$ D.

(ii) Worst = Brother (B).

His sibling is Nalini (N). Then S must be diagonally across from N. But with B already fixed at top-left, the only diagonal to N depends on N's position: - If $N =$ top-right, diagonal is bottom-left (occupied by D). - If $N =$ bottom-right, diagonal is top-left (occupied by B). In either case, S cannot occupy the needed diagonal. So worst $\neq$ B.

(iii) Worst = Nalini (N).

Her sibling is Brother (B). Then S must be diagonally across from B (top-left $\Rightarrow$ diagonal is bottom-right). Thus $S =$ bottom-right and $N =$ top-right.

(iv) Worst = Son (S).

His sibling is Daughter (D). Then S must be diagonally across from D (bottom-left $\Rightarrow$ diagonal is top-right). Thus $S =$ top-right and $N =$ bottom-right.

Step 3: Apply "Best and Worst are on the same side of the net."

- In case (iii) (worst $= N$): top side has (B, N). Since worst is on the top side, the best must also be on the top side $\Rightarrow$ best $= B$. - In case (iv) (worst $= S$): top side has (B, S). Worst is again on the top side $\Rightarrow$ best $= B$.

Both consistent cases force Best is Brother.

Nalini's brother is the best player.

Quick Tip

For 2×2 net problems, first lock the "across the net" pair (same column). Then test each candidate for "worst" and use the sibling/diagonal constraints to prune impossible layouts; finally use the side-of-net condition to identify "best."

Q62. In a certain code language 'PROMOTION' is written as 'QSP89'. How will you write 'DEMOTION'?

A) DE98

B) EF98

C) EF89

D) EG89

Correct Answer: (C) EF89

Solution:

Step 1: Decode the pattern from PROMOTION $\rightarrow$ QSP89.

Split "PROMOTION" as P R O | MOTION. From the mapping shown:

$$P \rightarrow Q \quad R \rightarrow S \quad O \rightarrow P \quad \text{and} \quad \text{MOTION} \rightarrow 89.$$

Thus the first three letters each shift one forward in the alphabet, and the substring "MOTION" is replaced by the digits 89.

Step 2: Apply the same rule to DEMOTION.

Write "DEMOTION" as D E | MOTION. - Shift each of the first two letters one step forward: $D \rightarrow E,\ E \rightarrow F$.

- Replace "MOTION" by 89.

Step 3: Form the code.

Concatenate results: DE (shift) $\Rightarrow$ EF, MOTION $\Rightarrow 89$. Hence the code is

$$\boxed{\text{EF89}}.$$

Quick Tip

When a coded example seems shorter, look for chunk-replacement rules (a whole substring mapped to digits/symbols) in addition to letter-wise shifts. Replicate the chunking to encode new words.

Q63. Study this matrix. In this game there are two players. The first player can split the matrix vertically into two equal halves and choose one half for further play. The next move on this half is by the other player who will split it only horizontally and choose one half for further play. The game continues likewise (vertical by Player–1, horizontal by Player–2). The last number left is Player–1's gain. If *you* start, retain the right half and, after your opponent's move, you again retain the right half, then how should your opponent play to minimize your gain?

$$\begin{bmatrix} 6 & 2 & 5 & 1 \\ 3 & 1 & 4 & 7 \\ 4 & 1 & 9 & 5 \\ 3 & 1 & 2 & 4 \end{bmatrix}$$

A) Retain upper, retain lower

B) Retain upper, retain upper

C) Retain lower, retain upper

D) Retain lower, retain lower

Correct Answer: (B) Retain upper, retain upper

Solution:

Step 1: Fix the first player's announced strategy.

Player–1 (you) first splits *vertically* and chooses the *right half*; after Player–2's choice, Player–1 will again choose the *right half*. We analyze with backward induction (min–max).

Step 2: After Player–1's first move (choose right half).

Right half (columns 3–4) is

$$\begin{bmatrix} 5 & 1 \\ 4 & 7 \\ 9 & 5 \\ 2 & 4 \end{bmatrix}$$

Now Player–2 must split *horizontally* into top two rows vs bottom two rows and choose one to *minimize* the eventual number.

Step 3: Evaluate Player–2's first choice (top vs bottom).

If Player–2 chooses the *upper* half:

$$\begin{bmatrix} 5 & 1 \\ 4 & 7 \end{bmatrix} \Rightarrow \text{Player–1 (vertical) chooses right half} \Rightarrow \begin{bmatrix} 1 \\ 7 \end{bmatrix}.$$

Now Player–2 splits horizontally into two 1×1 blocks and picks the smaller to minimize the final gain $\Rightarrow 1$.

If Player–2 chooses the *lower* half:

$$\begin{bmatrix} 9 & 5 \\ 2 & 4 \end{bmatrix} \Rightarrow \text{Player–1 (vertical) chooses right half} \Rightarrow \begin{bmatrix} 5 \\ 4 \end{bmatrix}.$$

Again Player–2 picks the smaller $\Rightarrow 4$.

Step 4: Optimal minimizing play.

Player–2 compares the two outcomes and selects the path yielding the *smaller* final number: 1 (upper-half path) vs 4 (lower-half path). Hence Player–2 must choose *upper* at the first horizontal split, and once the column $[1, 7]^\top$ is formed, choose the *upper* again to leave 1.

Opponent's strategy: Retain upper, then retain upper (final number $= 1$).

Quick Tip

These alternating-cut games are solved by **backward induction**: from each 2×2 block, anticipate Player–1's forced choice (here: right column), then let the minimizer pick the smaller entry. Compare the resulting minima to choose the earlier split.

Q64. What is the next letter in the series: U, F, Q, J, M, N ?

A) I

B) T

C) O

D) M

Correct Answer: (A) I

Solution:

Step 1: Convert letters to positions in the alphabet.

$U = 21,\ F = 6,\ Q = 17,\ J = 10,\ M = 13,\ N = 14.$

Step 2: Separate into two alternating subsequences.

Odd places (1st, 3rd, 5th, ...): $21, 17, 13, \ldots \Rightarrow$ arithmetic progression with common difference -4. Even places (2nd, 4th, 6th): $6, 10, 14 \Rightarrow$ arithmetic progression with common difference $+4$.

Step 3: Find the 7th term (odd position).

Continue the odd-position AP: $21 \to 17 \to 13 \to 9$. Position 9 corresponds to the letter I.

$$\boxed{I}$$

Quick Tip

For mixed letter series, try splitting into *alternate* subsequences. Many problems hide simple A.P. patterns (fixed ± 4, ± 3, etc.) in odd and even positions.

Q65. Sonal defines a number as 'connected by 6' if it is divisible by 6, or if the sum of its digits is 6, or if 6 is one of its digits. Other numbers are 'not connected by 6'. From 1 to 60 (both inclusive), how many integers are *not* connected with 6?

A) 18

B) 43

C) 22

D) 42

Correct Answer: (B) 43

Solution:

Step 1: List numbers divisible by 6 (within 1–60).

$$\{6, 12, 18, 24, 30, 36, 42, 48, 54, 60\} \quad \Rightarrow \ 10 \text{ numbers.}$$

Step 2: List numbers having the digit '6'.

$$\{6, 16, 26, 36, 46, 56, 60\}.$$

Step 3: List numbers whose digit-sum is 6.

$$\{6, 15, 24, 33, 42, 51, 60\}.$$

Step 4: Take the *union* (avoid double counting).

Start with the 10 from Step 1. From Step 2, new additions (not already counted): $16, 26, 46, 56 \Rightarrow$ total $= 14$. From Step 3, new additions: $15, 33, 51 \Rightarrow$ total $= 17$.

Hence, numbers *connected by 6* in 1–60 $=\ 17$.

Step 5: Count those *not* connected.

$$60 - 17 \ = \ \boxed{43}.$$

Quick Tip

When a condition is a union of properties (divisible by, digit present, digit-sum), count each set, then combine via the **union** with careful removal of overlaps.

Q66. Leena, Nitin, Arun and Mohan must cross a lake in a 2-person canoe. There are 3 forward trips (two people) and 2 return trips (one person). Constraints: (i) Leena cannot paddle when someone else is in the canoe with her (so she can paddle only when alone). (ii) Nitin cannot paddle when anyone other than Arun is with him (he may paddle with Arun, or alone). (iii) Each person must paddle continuously for at least one trip. Who paddled twice?

A) Leena

B) Nitin

C) Mohan

D) Arun

Correct Answer: (D) Arun

Solution:

Step 1: Plan the first forward trip.

Because Nitin can paddle only if his partner is Arun (or alone on a return), pair $\{Nitin, Arun\}$ on the *first forward* trip with **Nitin paddling**. This also satisfies "everyone paddles at least once" soon.

Step 2: First return trip must be solo.

Someone must bring the canoe back. Leena can only paddle alone; Arun has no such restriction. If Leena returns now, she would end up alone on the starting bank, delaying progress; we prefer **Arun returns alone** (allowed). Status: Start bank—Leena, Mohan, Arun; Far bank—Nitin.

Step 3: Second forward trip.

Leena cannot paddle with anyone else, so she must be a *passenger* on forward trips. Pair $\{Arun, Leena\}$ and let **Arun paddle** (valid since Leena cannot paddle with a partner). Status: Far bank—Nitin, Arun, Leena; Start bank—Mohan.

Step 4: Second return trip (solo).

Now to fetch Mohan: **Leena returns alone** (the only way she can paddle). Status: Start bank—Leena, Mohan; Far bank—Nitin, Arun.

Step 5: Final forward trip.

Send $\{Leena, Mohan\}$ across with **Mohan paddling** (Leena cannot paddle with a partner). All four are now across.

Step 6: Who paddled twice?

Sequence of paddlers: 1) Nitin (forward), 2) Arun (return), 3) Arun (forward), 4) Leena (return), 5) Mohan (forward). $\Rightarrow$ Only **Arun** paddled **twice and consecutively**.

Arun paddled twice.

Quick Tip

Turn verbal constraints into *who-can-paddle-with-whom* rules, then construct trips greedily while ensuring coverage: place restricted pairs first, use solo-returners to reset the canoe, and keep track of who has already paddled.

Q67. A, B, C, D, E, F and G are the members of a family consisting of 4 adults and 3 children, two of whom, F and G are girls. A and D are brothers and A is a doctor. E is an engineer married to one of the brothers and has two children. B is married to D and G is their child. Who is C?

A) G's Father

B) F's Father

C) E's Daughter

D) A's Son

Correct Answer: (D) A's Son

Solution:

Step 1: Decode the marriages and siblings.

- A and D are **brothers**.

- B is **married to D**; their child is **G** (a girl).

- E is an **engineer** married to *one of the brothers*. Since D is married to B, E must be married to **A**.

Step 2: Place the children.

There are 3 children in total; two are girls F and G. We already know G is child of B and D. E (married to A) "has two children" $\Rightarrow$ E and A's children are $\{F,\ C\}$. Because F is a girl, and the total girls among children are F and G, the third child C must be a **boy**.

Step 3: Identify C.

Since C is a boy and the children of A & E are $\{F, C\}$, we get

$$\boxed{C \text{ is A and E's son.}}$$

Quick Tip

In family puzzles, lock marriages first, then use counts (number of children, genders) to deduce the remaining identities.

Q68. If every alternative letter of the English alphabet from B onwards (including B) is written in lower case and the remaining letters are capitalized, how will the first month of the second half of the year be written?

A) AuGuSt

B) JuLy

C) jUly

D) AugUSt

Correct Answer: (C) jUly

Solution:

Step 1: Build the alphabet pattern.

Starting with A (not affected), from B onward write *every alternate letter* in lowercase (including B), and the others in uppercase:

$$A\,b\,C\,d\,E\,f\,G\,h\,I\,j\,K\,l\,M\,n\,O\,p\,Q\,r\,S\,t\,U\,v\,W\,x\,Y\,z.$$

Step 2: Map the letters of JULY.

$J \mapsto j$ (lowercase), $U \mapsto U$ (uppercase), $L \mapsto l$ (lowercase), $Y \mapsto Y$ (uppercase). Thus the month is written as

$$\boxed{\text{jUly}} \text{ (i.e., } j-U-l-Y \text{ by the rule).}$$

Quick Tip

Write the entire A–Z pattern once under the rule, then read off the required word letter by letter to avoid slips.

Q69. A rich merchant says: "If I divide my gold coins into two unequal numbers, then 48 times the difference between them equals the difference of their squares." How many coins does he have?

A) 96

B) 53

C) 43

D) None of these

Correct Answer: (D) None of these

Solution:

Step 1: Translate into algebra.

Let the two unequal parts be x and y with $x > y$. Given:

$$48(x-y) \;=\; x^2 - y^2.$$

Step 2: Factor and simplify.

$$x^2 - y^2 = (x - y)(x + y).$$

Since $x \neq y$, divide both sides by $(x - y)$:

$$48 = x + y.$$

Step 3: Conclude the total coins.

Total coins $= x + y = \boxed{48}$. This number is not among the options $(96, 53, 43)$; hence the correct choice is

$$\boxed{\text{None of these}}.$$

Quick Tip

Whenever you see a difference of squares $x^2 - y^2$, factor it as $(x - y)(x + y)$. If a factor $(x - y)$ is known nonzero, you can safely cancel it.

Q70. An enterprising businessman earns an income of ₹1 on the first day of his business. On every subsequent day, he earns an income which is just double of that made on the previous day. On the 10th day of business, his income is

A) ₹2^9

B) ₹2^{10}

C) ₹10^2

D) ₹10

Correct Answer: (A) ₹2^9

Solution:

Step 1: Write the daily-income rule.

Day 1 income $= |1$. Each next day is *double* the previous day $\Rightarrow$ geometric progression with ratio 2.

Step 2: General form.

Income on Day $n = |\,2^{n-1}$ (because $1, 2, 4, 8, \ldots$).

Step 3: Substitute $n = 10$.

$$\text{Day 10 income} = |\,2^{10-1} = |\,2^9.$$

$$\boxed{|\,2^9}$$

Quick Tip

If a quantity "doubles every day", the n^{th} day value is the first term times 2^{n-1} — a basic geometric progression.

Q71. Three boys steal a basket of apples (fewer than 100). In the night each boy wakes up in turn. Each time, he finds that if he first takes one apple for himself, the remaining can be divided into three equal parts. He then *takes one apple* and *bags one–third of the rest*, hides them, and goes back to sleep. All three boys do this in sequence. In the morning the remaining apples again total "1 more than a multiple of 3". How many apples did they steal?

A) 67

B) 79

C) 85

D) None of the above

Correct Answer: (B) 79

Solution:

Step 1: Translate the single boy's action.

If the pile before a boy is X, he: (i) takes 1 apple, (ii) from the remainder $(X - 1)$ he takes a third, leaving two–thirds. Hence new pile after his move:

$$\boxed{f(X) = \frac{2}{3}(X - 1)}$$

Step 2: Apply the process thrice.

Let N be the initial number of apples (< 100). After the first, second and third boys:

$$R_1 = f(N) = \frac{2}{3}(N-1), \qquad R_2 = f(R_1) = \frac{2}{3}(R_1-1)\,, \qquad R_3 = f(R_2) = \frac{2}{3}(R_2-1)\,.$$

Step 3: Morning condition.

The remaining apples satisfy $R_3 \equiv 1 \pmod 3$ (i.e., "1 more than divisible by 3"). To solve neatly, use the *inverse* of f: since $R = f(X) = \frac{2}{3}(X-1)$,

$$X = f^{-1}(R) = \frac{3}{2}R + 1.$$

Thus,

$$R_2 = \frac{3}{2}R_3 + 1, \quad R_1 = \frac{3}{2}R_2 + 1, \quad N = \frac{3}{2}R_1 + 1.$$

For integrality, each right-hand side must be an integer $\Rightarrow R_3$ must be even, and then R_2 even, etc.

Step 4: Find the feasible $N < 100$.

Try small even R_3 that also satisfy $R_3 \equiv 1 \pmod 3 \Rightarrow R_3 \in \{4, 10, 16, 22, \dots\}$. Take $R_3 = 22$ (meets both conditions). Then:

$$R_2 = \frac{3}{2}\cdot 22 + 1 = 34, \quad R_1 = \frac{3}{2}\cdot 34 + 1 = 52, \quad N = \frac{3}{2}\cdot 52 + 1 = 79 < 100.$$

Check forward with $N = 79$:

$$R_1 = \tfrac{2}{3}(79-1) = \tfrac{2}{3}\cdot 78 = 52,$$
$$R_2 = \tfrac{2}{3}(52-1) = \tfrac{2}{3}\cdot 51 = 34,$$
$$R_3 = \tfrac{2}{3}(34-1) = \tfrac{2}{3}\cdot 33 = 22 \equiv 1 \pmod 3.$$

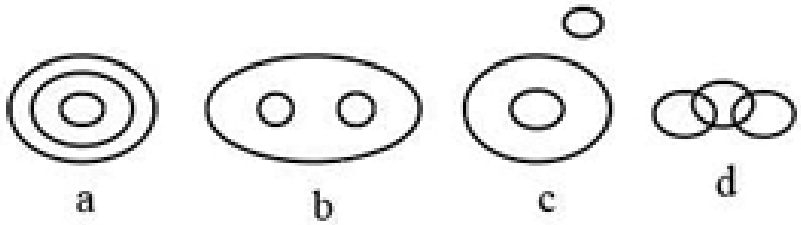
All conditions hold. (Other candidate R_3 values either exceed 100 when backtracked or fail integrality.)

$$\boxed{79}$$

Quick Tip

When a step repeatedly does "take 1, then keep $\frac{2}{3}$ of the rest", set $f(X) = \frac{2}{3}(X-1)$ and solve by **backtracking** with $f^{-1}(R) = \frac{3}{2}R + 1$. Impose divisibility/integrality at each stage.

Choose from these four diagrams the one that best illustrates the relationship among three given classes



Q72. Choose from these four diagrams the one that best illustrates the relationship among three given classes: Chilli, Salt, Vegetables.

A) Diagram a

B) Diagram b

C) Diagram c

D) Diagram d

Correct Answer: (C) Diagram c

Solution:

Step 1: Analyze the categories.

- "Vegetables" is the largest class. - "Chilli" is a subset of vegetables (since chilli is a type of vegetable). - "Salt" is completely outside the set of vegetables (not related).

Step 2: Match to the diagram.

We need one circle fully inside another (Chilli inside Vegetables) and one circle disjoint (Salt apart). Diagram (c) shows exactly this.

Diagram C

Quick Tip

When solving Venn diagram classification, always check which terms are subsets, disjoint, or overlapping categories. This directly points to the diagram.

Q73. Choose from these four diagrams the one that best illustrates the relationship among three given classes: Student of Law, Students of Science, Men.

A) Diagram a

B) Diagram b

C) Diagram c

D) Diagram d

Correct Answer: (B) Diagram b

Solution:

Step 1: Interpret the categories.

- "Students of Law" and "Students of Science" are two distinct groups; they are disjoint. - Both groups, however, are included within the larger class "Men."

Step 2: Map to diagrams.

We need two non-overlapping smaller circles within one bigger circle. Diagram (b) shows exactly this.

Diagram B

Quick Tip

For subset relations, look for circles inside larger circles. For mutually exclusive groups within a larger category, use disjoint smaller circles inside one bigger circle.

Study the following example and answer the questions.

An electronic device rearranges numbers step-by-step in a particular order according to a set of rules. The device stops when the final result is obtained. In this case the device stops at Step V.

Input: 85 16 36 04 19 97 63 09

Step I - 97 85 16 36 04 19 63 09

Step II - 97 85 63 16 36 04 19 09

Step III - 97 85 63 36 16 04 19 09

Step IV - 97 85 63 36 19 16 04 09

Step V - 97 85 63 36 19 16 09 04

Q74. Study the device rule from the example and determine *Step III* for the input below. Input: 09 25 16 30 32 18 17 06

A) 32 09 25 16 30 18 17 06

B) 32 30 09 25 16 19 17 06

C) 32 30 09 25 16 18 17 06

D) 32 30 25 09 16 18 17 06

Correct Answer: (D) 32 30 25 09 16 18 17 06

Solution:

Understand the rule from the example.

From the worked example (85 16 36 04 19 97 63 09), at each step the device places the *largest* number from the still-unsorted suffix into the next position from the left. In other words, it is a selection sort in **descending** order, filling positions 1, 2, 3, ... one-by-one.

Step 1: Place the largest at Position 1.

Largest in the full list $(09, 25, 16, 30, 32, 18, 17, 06)$ is 32. After Step I: $32\ 09\ 25\ 16\ 30\ 18\ 17\ 06$.

Step 2: Place the next largest at Position 2.

Look at the suffix starting from position 2: $(09, 25, 16, 30, 18, 17, 06)$. Largest is 30. After Step II: $32\ 30\ 09\ 25\ 16\ 18\ 17\ 06$.

Step 3: Place the next largest at Position 3.

Suffix from position 3 is $(09, 25, 16, 18, 17, 06)$; largest is 25. After Step III:

$\boxed{32\ 30\ 25\ 09\ 16\ 18\ 17\ 06}$.

Quick Tip

When a machine "rearranges step-by-step", first infer the rule from the sample. Here it's **selection-sort descending**: at Step k, the k-th position receives the maximum of the remaining suffix.

Q75. What is the last step for the input below under the same device rule? Input: 16 09 25 27 06 05

A) Step II

B) Step III

C) Step IV

D) None of the above

Correct Answer: (A) Step II

Solution:

Step 1 (Position 1): Largest overall is 27. After Step I: $27\ 16\ 09\ 25\ 06\ 05$.

Step 2 (Position 2): From suffix $(16, 09, 25, 06, 05)$, largest is 25. After Step II:

$27\ 25\ 16\ 09\ 06\ 05$.

Check remaining suffix: $(16, 09, 06, 05)$ is already in strict descending order. Therefore no further moves are required; the arrangement is final after **two steps**.

$\boxed{\text{Last step is Step II}}$

Quick Tip

Once the fixed prefix is in descending order, look at the residual suffix; if it's already descending, the device stops—no extra steps are performed.

Q76. What is the output of Step V for the input below? Input: 25 08 35 11 88 67 23

A) 88 67 35 25 23 11 08

B) 88 67 35 25 23 08 11

C) 08 11 23 25 35 67 88

D) None of the above

Correct Answer: (A) 88 67 35 25 23 11 08

Solution:

Rule of the device: The device picks the *largest number not in descending order* and places it in the correct next position. Effectively, the sequence is being arranged step-by-step in descending order.

Step I: Start with input: $25, 08, 35, 11, 88, 67, 23$. The largest number overall is 88. Place it at the beginning. $88\ 25\ 08\ 35\ 11\ 67\ 23$.

Step II: Look at the remaining suffix $(25, 08, 35, 11, 67, 23)$. The largest is 67. Place it at the second position. $88\ 67\ 25\ 08\ 35\ 11\ 23$.

Step III: Suffix $(25, 08, 35, 11, 23)$. Largest is 35. Place it at third position.
$88\ 67\ 35\ 25\ 08\ 11\ 23$.

Step IV: Suffix $(25, 08, 11, 23)$. Largest is 25. Place it at fourth position. $88\ 67\ 35\ 25\ 08\ 11\ 23$.

Step V: Suffix $(08, 11, 23)$. Largest is 23. Place it at fifth position. $\boxed{88\ 67\ 35\ 25\ 23\ 11\ 08}$.

Hence, the Step V output is option (A).

Quick Tip

Always track the largest remaining number at each step. This problem follows the principle of **selection sort in descending order**. After each step, the prefix grows into a strictly descending sequence.

Q77. Which one of the following would be last step for the input below? Input: 03 31 43 22 11 09

A) Step II

B) Step III

C) Step IV

D) None of the above

Correct Answer: (D) None of the above

Solution:

Step 1: Identify the pattern.

From the given example in the instructions, the device arranges numbers in *descending order*, step by step. In each step, the largest number not yet in its correct position is moved to its proper place at the left.

Step 2: Write the input.

Input: 03 31 43 22 11 09

Step 3: Apply the rule step-by-step.

- **Step I:** Largest number is 43. It is at position 3, but it should be at the first position. So swap/move it. New sequence: 43 03 31 22 11 09

- **Step II:** Next largest is 31. It should be at the second position. Currently, 31 is at position 3, so move it. New sequence: 43 31 03 22 11 09

- **Step III:** Next largest is 22. It should be at the third position. Currently, it is at position 4, so move it. New sequence: 43 31 22 03 11 09

- **Step IV:** Next largest is 11. It should be at the fourth position. Currently, it is at position 5, so move it. New sequence: 43 31 22 11 03 09
- **Step V:** Next largest is 09. It should be at the fifth position. Currently, it is at position 6, so move it. New sequence: 43 31 22 11 09 03

Step 4: Confirm stopping point.

Now the sequence is completely sorted in descending order. The device stops here. The last step needed = Step V.

Step 5: Compare with options.

Options were Step II, Step III, Step IV, or None of the above. The correct last step is Step V, which is not listed. Therefore, the answer is (D) None of the above.

$$\boxed{5 \text{ steps are needed, last step = Step V}}$$

Quick Tip

In such problems, always check the sorting pattern (ascending or descending). Then simulate step-by-step carefully, noting the largest element being placed in its correct position. Count the total number of steps before the sequence is fully ordered.

Q78. If the output of Step IV is as given below, what was the input? Step IV: 92 86 71 69 15 19 06 63 58

A) 86 92 69 71 15 19 06 63 58
B) 15 86 19 92 06 69 63 58 71
C) 15 19 06 63 58 86 92 69 71
D) None of the above

Correct Answer: (D) None of the above

Solution:

Step 1: Recall the rule.

From the earlier example, the device sorts numbers step-by-step in **descending order**. At each step, the largest number not yet in its correct place is moved to the leftmost available position.

Step 2: Analyze the given Step IV.

Step IV is: 92 86 71 69 15 19 06 63 58. This shows that after four steps: - The largest (92) is fixed in position 1. - The next largest (86) is fixed in position 2. - The next largest (71) is fixed in position 3. - The next largest (69) is fixed in position 4. Thus, the first four numbers are in perfect descending order.

Step 3: Ambiguity in reconstruction.

The remaining numbers (15, 19, 06, 63, 58) are still unsorted. They could have originally appeared in many different orders. Since we only know the sorted positions after Step IV, but not from which indices the numbers were moved in earlier steps, the exact input arrangement cannot be uniquely determined.

Step 4: Check given options.

- Option A: 86 92 ... already breaks the Step I placement rule. - Option B and C: do not lead to the given Step IV sequence when applying the procedure. Therefore, none of the options match.

Answer = None of the above

Quick Tip

In input-output rearrangement puzzles, once a few steps are completed, the initial input cannot always be uniquely traced backward. Be cautious: if multiple inputs could lead to the same intermediate step, the correct choice is usually "None of the above."

Q79. Read the following information and answer the question. P # Q means P is the **father** of Q; P + Q means P is the **mother** of Q; P - Q means P is the **brother** of Q; P * Q means P is the **sister** of Q.

If $A + B \# C - D$, then A is D's ___ ?

A) Sister

B) Grandfather

C) Grandmother

D) Father

Correct Answer: (C) Grandmother

Solution:

Step 1: Decode each relation in order.

$A + B \Rightarrow$ A is the **mother** of B (A is female).

$B\#C \Rightarrow$ B is the **father** of C.

$C - D \Rightarrow$ C is the **brother** of D $\Rightarrow$ C and D are children of the *same* parents.

Step 2: Combine the relations.

From $A + B$ and $B\#C$: A is the mother of B, and B is the father of C $\Rightarrow$ A is the **grandmother** of C.

Since C and D are siblings, A is also the **grandmother** of D.

A is D's Grandmother

Quick Tip

Always propagate relations through the chain: parent of (parent of X) $\Rightarrow$ $grandparent of X; then extend to siblings to keep the generation level consistent.$

Q80. Which of the following shows that A is the Aunt of E? (Use the same code: # = father, $+$ = mother, $-$ = brother, $*$ = sister.)

A) $A - B + C\#D * E$

B) $A * B\#C * D - E$

C) $A\#B * C + D - E$

D) $A + B - C * D \# E$

Correct Answer: (B) $A * B \# C * D - E$

Solution:

Check each option against "A is the Aunt of E".

To be E's **aunt**, A must be **female** and a **sibling of one parent of E**.

Option A: $A - B \Rightarrow A$ is the **brother** of B (male) $\Rightarrow$ A cannot be an aunt. $\Rightarrow$ **Reject**.

Option B: $A * B \Rightarrow A$ is the **sister** of B (female). $B \# C \Rightarrow B$ is the **father** of C. $C * D \Rightarrow C$ is the **sister** of $D \Rightarrow C$ and D are siblings. $D - E \Rightarrow D$ is the **brother** of $E \Rightarrow D$ and E are siblings; hence C, D, E are all siblings. Therefore B (father of C) is also a parent of D and E. Since A is the **sister of the parent** B, A is the **aunt of** E. $\Rightarrow$ **Accept**.

Option C: $A \# B \Rightarrow A$ is the **father** of B (male), so A cannot be an aunt. $\Rightarrow$ **Reject**.

Option D: $A + B \Rightarrow A$ is the **mother** of B. Then $B - C$ (B brother of C) and $C * D$ (C sister of D) do not ensure A is a *sibling* of E's parent; the last link $D \# E$ makes D E's father, but A is not shown as D's sibling—thus "aunt" is not guaranteed. $\Rightarrow$ **Reject**.

Only Option B guarantees that A is E's Aunt

Quick Tip

For "aunt/uncle" conclusions, confirm two things: (1) gender of A, via * (sister) or - (brother), and (2) A is a *sibling of a parent* of the target person.

Read the following passage and answer (c) how climatic changes led to the founding of the earliest the 7 questions following the same.

As the climate in the Middle East changed beginning around 7000 B.C.E., conditions emerged that were conducive to a more complex and advanced form Question of civilization in both Egypt and Mesopotamia. The process began when the swampy valleys of the Nile in Egypt and of the Tigris and Euphrates Rivers in Mesopotamia became driver, producing

reverine lands that were both habitable and fertile, and attracting settlers armed with the newly developed techniques of agriculture. This migration was further encouraged by the gradual transformation of the once-hospitable grasslands of these regions into deserts. Human population became increasingly concentrated into pockets of settlement scattered along the banks of the great rivers.

These rivers profoundly shaped the way of life along their banks. In Mesopotamia, the management of water in conditions of unpredictable drought, flood and storm became the central economic and social challenge. Villagers began early to build simple earthworks, dikes, canals, and ditches to control the waters and reduce the opposing dangers of drought during the dry season (usually the spring) and flooding at harvest time.

Such efforts required a degree of cooperation among large numbers of people that had not previously existed. The individual village, containing only a dozen or so houses and families, was economically vulnerable; but when several villages, probably under the direction of a council of elders, learned to share their human resources in the building of a coordinated network of water-control systems, the safety, stability, and prosperity of all improved. In this new cooperation, the seeds of the great Mesopotamian civilizations were being sown.

Technological and mathematical invention, too, were stimulated by life along rivers. Such devices as the noria (a primitive waterwheel) and the Archimedean screw (a device for raising water from the low riverbanks to the high ground where it was needed), two forerunners of many more varied and complex machines, were first developed here for use in irrigation systems. Similarly, the earliest methods of measurement and computation and the first developments in geometry were stimulated by the need to keep track of land holdings and boundaries in fields that were periodically inundated.

The rivers served as high roads of the earliest commerce. Traders used boats made of boundles of rushes to transport grains, fruits, nuts, fibers, and textiles from one village to another, transforming the rivers into the central spines of nascent commercial kingdoms. Trade expanded surprisingly widely; we have evidence suggesting that, even before the establishment of the first Egyptian dynasty, goods were being exchanged between villagers in Egypt and others as far away as Iran.

Similar developments were occuring at much the same time along the great river valleys in other parts of the world - for example, along the Indus in India and the Hwang Ho in China. The history of early civilization has been shaped to a remarkable degree by the relation of humans and rivers.

Q81. This passage basically explains

A) the similarities and differences among several ancient societies
B) the influence of river settlements on the growth of early civilizations
C) how climatic changes led to the founding of the earliest recorded cities
D) the development of primitive technologies in the ancient Middle East

Correct Answer: (B) the influence of river settlements on the growth of early civilizations

Solution:

Step 1: Identify the central theme of the passage.

The passage highlights how river valleys such as the Nile, Tigris, and Euphrates shaped early settlements and civilizations. It specifically shows how agriculture, cooperation, technology, mathematics, and trade all flourished because of rivers.

Step 2: Evaluate options.

- (A) is incorrect since the focus is not on comparing societies. - (C) is partly true but only describes one cause (climate change). The passage's scope is broader, focusing on river-based settlements. - (D) mentions primitive technologies, but those were just outcomes, not the main theme. - (B) matches perfectly, as the entire passage revolves around the role of rivers in early civilizations.

Answer = B

Quick Tip

When asked about the "main idea," focus on the central recurring theme across paragraphs, not just a supporting detail.

Q82. According to the passage, the increasing aridity of formerly fertile grasslands in Egypt and Mesopotamia caused the settlement patterns in those regions to become ___.

A) less nomadic

B) less stable

C) more concentrated

D) more sparse

Correct Answer: (B) less stable

Solution:

Step 1: Recall passage lines.

The passage says: *"In Mesopotamia, the management of water in conditions of unpredictable drought, flood and storm became the central economic and social challenge."* This indicates instability before coordinated water management.

Step 2: Interpret.

Life was unstable before villages cooperated in building irrigation systems. Thus, the settlement patterns were "less stable" due to climatic aridity.

Answer = B

Quick Tip

Look for contrasts in the passage (before vs. after) — they often reveal the correct answer in inference questions.

Q83. The passage implies that the earliest geometry was practiced primarily by ___.

A) farm workers

B) land owners

C) traders and merchants

D) mechanical artisans

Correct Answer: (B) land owners

Solution:

Step 1: Recall passage lines.

The text states: *"the earliest methods of measurement and computation and the first developments in geometry were stimulated by the need to keep track of land holdings and boundaries in fields that were periodically inundated."*

Step 2: Deduction.

Geometry was required not by ordinary farm workers but by those who owned land and needed to record its boundaries.

Answer = B

Quick Tip

Always distinguish between "workers" who perform labor and "owners" who manage or measure land—passage wording is key.

Q84. The passage indicates that the social effects of the unpredictability of water supplies in Mesopotamia was ___.

A) to encourage cooperation in the creation of water management systems

B) to drive farmers to settle in fertile grasslands far from the uncontrollable rivers

C) to cause warfare over water rights among rival villages

D) None of the above

Correct Answer: (A) to encourage cooperation in the creation of water management systems

Solution:

Step 1: Recall passage lines.

The text says: *"when several villages, probably under the direction of a council of elders, learned to share their human resources in the building of a coordinated network of water-control systems, the safety, stability, and prosperity of all improved."*

Step 2: Interpretation.

The unpredictability of water (droughts, floods) forced villages to cooperate in building irrigation and water-control systems.

Answer = A

Quick Tip

Look for "social effects" in the passage — they often involve cooperation, conflict, or migration. The correct choice here is cooperation.

Q85. The passage refers to the earliest trade routes in the Middle East as ___.

A) between various centrally ruled commercial kingdoms

B) between linked villages in Egypt with others in Iran

C) between connected villages that were scattered along the banks of the same river

D) between the inhabitants of small villages and the dynastic kings who ruled them

Correct Answer: (B) between linked villages in Egypt with others in Iran

Solution:

Step 1: Recall passage lines.

It states: *"Trade expanded surprisingly widely; we have evidence suggesting that, even before the establishment of the first Egyptian dynasty, goods were being exchanged between villagers in Egypt and others as far away as Iran."*

Step 2: Conclusion.

Thus, the earliest trade routes were not just local, but extended between Egypt and Iran.

Answer = B

Quick Tip

When a passage explicitly names regions (Egypt and Iran), use those details directly — they often point to the correct option.

Q86. The passage implies that the emergence of complex civilizations in the Middle East was dependent upon the previous development of ___.

A) a system of centralized government

B) symbolic systems for writing and mathematical computation

C) a method of storing and transferring wealth

D) basic techniques of agriculture

Correct Answer: (D) basic techniques of agriculture

Solution:

Step 1: Recall passage lines.

The first paragraph says: *"The process began when the swampy valleys of the Nile in Egypt and of the Tigris and Euphrates Rivers in Mesopotamia became drier, producing riverine lands that were both habitable and fertile, and attracting settlers armed with the newly developed techniques of agriculture."*

Step 2: Interpretation.

Thus, agriculture was the prerequisite that enabled settlements, cooperation, and the rise of civilizations.

Answer = D

Quick Tip

Always trace the "first step" mentioned in historical passages — it usually identifies the fundamental factor behind complex societies.

Q87. By referring to emerging civilizations in India and China the author wants to emphasize the ___.

A) relatively advanced position enjoyed by the Middle East in comparison to other regions
B) rapidity with which social systems developed in the Middle East spread to other places
C) crucial role played by rivers in the development of human cultures around the world
D) importance of water transportation in the growth of early trade

Correct Answer: (C) crucial role played by rivers in the development of human cultures around the world

Solution:

Step 1: Passage reference.

The last paragraph says: *"Similar developments were occurring at much the same time along the great river valleys in other parts of the world – for example, along the Indus in India and the Hwang Ho in China. The history of early civilization has been shaped to a remarkable degree by the relation of humans and rivers."*

Step 2: Interpretation.

By mentioning India and China, the author emphasizes that it was not only the Middle East where rivers shaped societies, but across multiple civilizations worldwide. The crucial common factor was the role of rivers.

Answer = C

Quick Tip

When a passage brings in examples from multiple regions, it usually signals a universal principle rather than just regional superiority.

Q88. Askance means:

A) side glance

B) quizzical expression

C) request

D) curious look

Correct Answer: (D) curious look

Solution:

Step 1: Meaning of "Askance".

The word "askance" means to look with suspicion, disapproval, or curiosity, often with doubt or mistrust.

Step 2: Evaluate options.

- (A) Side glance: too narrow; doesn't capture suspicion/disapproval. - (B) Quizzical expression: conveys puzzlement but not suspicion. - (C) Request: unrelated. - (D) Curious look: closest in meaning since it implies a doubtful, suspicious gaze.

Answer = D

Quick Tip

Vocabulary questions often test nuanced meanings. Check if the word has a negative connotation (suspicion/disapproval). That helps eliminate neutral/positive options.

Q89. Virtuoso means:

A) skilled performer

B) amateur

C) good person

D) professional

Correct Answer: (A) skilled performer

Solution:

Step 1: Meaning of "Virtuoso".

A ”virtuoso” refers to someone who is extremely skilled in a particular art, especially music or another creative pursuit.

Step 2: Evaluate options.

- (A) Skilled performer: correct, directly matches the definition. - (B) Amateur: opposite meaning, since amateurs lack mastery. - (C) Good person: moral quality, not skill-based. - (D) Professional: while professionals are skilled, not all professionals are virtuosos. Virtuoso emphasizes *exceptional* skill.

Answer = A

Quick Tip

Look for precision: ”virtuoso” is not just professional competence, but outstanding artistic mastery.

Q90. Nuance: Subtle

A) Pun: Sarcastic

B) Fib: Honest

C) Inquiry: Discreet

D) Hint: Indirect

Correct Answer: (A) Pun: Sarcastic

Solution:

Step 1: Understanding the analogy.

”Nuance” means a **subtle difference**. The analogy requires a word pair where the first term leads to a second term that reflects subtlety or close relation.

Step 2: Evaluate options.

- (A) Pun: Sarcastic — A pun is a subtle play on words, often sarcastic or humorous. This is the closest match. - (B) Fib: Honest — Contradictory, since fib means lie, opposite of

honest. - (C) Inquiry: Discreet — Inquiry can be direct or indirect, not inherently subtle. - (D) Hint: Indirect — Hint is indirect, but this is not as strong an analogy as (A).

Step 3: Match analogy type.

Just as ”nuance” involves subtlety in meaning, a ”pun” involves subtlety in wordplay, often sarcastic.

Answer = A

Quick Tip

In analogy questions, focus on the *relationship type* (definition, synonym, function). “Nuance” and “subtle” are definition-linked; “pun” and “sarcastic” work the same way.

Q91. Arena: Conflict

A) Mirage: Reality

B) Forum: Discussion

C) Asylum: Pursuit

D) Utopia: Place

Correct Answer: (B) Forum: Discussion

Solution:

Step 1: Understand the base relation.

An *Arena* is the place where a **conflict** (fight, competition, or contest) is carried out. The relationship is *place* $\rightarrow$ *activity/event that occurs there*.

Step 2: Apply to each option.

- (A) Mirage: Reality – A mirage is the opposite of reality, not a place where reality happens. Relation is contradiction, not place-event. $\Rightarrow$ Incorrect. - (B) Forum: Discussion – A forum is the place where discussions happen. This matches the same structure as ”Arena: Conflict”. $\Rightarrow$ Correct. - (C) Asylum: Pursuit – An asylum is a place of refuge, but not a place where

”pursuit” happens. Wrong relationship. ⇒ Incorrect. - (D) Utopia: Place – Utopia itself means an ideal place, not an activity occurring there. Relation mismatch. ⇒ Incorrect.

Answer = B

Quick Tip

For analogy questions, first identify the precise relation (here: ”place where an event occurs”) and then test each option against that pattern.

Q92. Hierarchy: Ranked

A) Equation: Solved

B) Critique: Biased

C) Chronology: Sequential

D) Infinity: Fixed

Correct Answer: (C) Chronology: Sequential

Solution:

Step 1: Understand the base relation.

”Hierarchy” is defined as an arrangement in which elements are **ranked** according to levels or order. Thus, the relationship is *concept* → *its defining property*.

Step 2: Apply to each option.

- (A) Equation: Solved – An equation is not necessarily solved; it exists whether solved or unsolved. This is an action applied to it, not its defining property. ⇒ Incorrect. - (B) Critique: Biased – A critique can be objective or biased, but bias is not the defining property of a critique. ⇒ Incorrect. - (C) Chronology: Sequential – Chronology is by definition the **sequential** ordering of events in time. This mirrors the hierarchy:ranked relationship. ⇒ Correct. - (D) Infinity: Fixed – Infinity is the opposite of fixed; it means limitless. Contradiction. ⇒ Incorrect.

Answer = C

Quick Tip

Look for "definition-type analogies" where the second word directly explains the essence of the first. Hierarchy means ranked, just as chronology means sequential.

Come with me to Kiebra: the largest shantytown in sub-Saharan Africa. More than 500,000 people live in this vast illegal section of Nairobi, in mud huts on mud streets, with no fresh water or sanitation. Walk down Kiebra's sodden pathways and you will see a great deal of hunger, poverty and disease. But you'll also find health clinics, beauty salons, grocery stores, bars, restaurants, tailors, clothiers, churches, and schools. In the midst of squalor and open sewage, business is booming.

Indeed, Kiebra's underground economy is so vibrant that it has produced its own squatter millionaire, someone I have known for years. From his start a generation ago selling cigarettes and biscuits from the window of his hut, this Kenyan (he asked to remain unnamed) has assembled an empire that includes pharmacies, groceries, bars, beverage-distribution outlets, transportation and manufacturing firms, and even real estate.

Families flock to Kiebra for the same reason country folk have always migrated to the city in search of opportunity. In the city they find work but not a place to live. So they build illegally on land they don't own. There are a billion squatters in the world today, almost one in six people on the planet. And their numbers are on the rise. Current projections are that by 2030 there will be two billion squatters, and by 2050, three billion, better than one in three people on the planet. In itself, it is nothing to worry about, for squatting has long had a positive role in urban development. Many urban neighbourhoods in Europe and North America began as squatter outposts. London and Paris boasted huge swaths of mud and?stick homes, even during the glory years of the British and French monarchies. Squatters were a significant force in most U.S. cities too. It would no doubt surprise residents paying millions for co-op

apartments on Manhatten's Upper east and West Sides to know that squatters occupied much of the turf under their buildings until the start of the 20th century. ..... from an article by Robert Neuwirth.

Q93. The author argues that Kiebra becoming the shantytown is not unusual because ___.

A) Kiebra has many poor people who have come to earn but have no land to live on.
B) Researchers have predicted that squatters will continue to grow in numbers.
C) Squatting has long had a positive role in urban development.
D) All of the above

Correct Answer: (D) All of the above

Solution:

Step 1: Recall passage points.

- Families move to Kiebra for work but have no legal land to stay on, so they occupy illegally (supports A). - The passage says: *"There are a billion squatters in the world today... their numbers are on the rise."* (supports B). - It also says: *"squatting has long had a positive role in urban development."* (supports C).

Step 2: Combine all.

Since all three reasons are explicitly supported by the text, the correct answer is **All of the above**.

Answer = D

Quick Tip

If multiple independent reasons in the passage support the conclusion, the safest choice is often "All of the above".

Q94. The prosperity of Kiebra's underground economy is described by the author through ___.

A) The description of Kiebra

B) The description of his friend's businesses

C) The comparison with co-op apartments of Manhattan

D) The history of London and Paris

Correct Answer: (B) The description of his friend's businesses

Solution:

Step 1: Recall passage lines.

The author writes: *"Indeed, Kiebra's underground economy is so vibrant that it has produced its own squatter millionaire... From his start selling cigarettes and biscuits... he now owns pharmacies, groceries, bars, transport, and real estate."*

Step 2: Interpretation.

The description of this friend's success illustrates the vibrancy and prosperity of Kiebra's economy.

Answer = B

Quick Tip

When the question asks "how is prosperity shown?", look for concrete examples (businesses, growth) rather than general comparisons.

Q95. The author puts forward the thesis that ___.

A) Squatters will continue to rise in numbers in the coming years irrespective of whether they are from poor countries or not.

B) There is nothing wrong in squatting on the land of a stranger.

C) London & Paris too are shantytowns.

D) Even today squatters live under Manhattan's co-op apartments.

Correct Answer: (A) Squatters will continue to rise in numbers in the coming years irrespective of whether they are from poor countries or not.

Solution:

Step 1: Passage reference.

The passage notes: *"There are a billion squatters in the world today... their numbers are on the rise. By 2030 there will be two billion... by 2050 three billion."*

Step 2: Interpretation.

This clearly shows the author's thesis: squatter numbers are growing globally, not confined to poor countries.

Step 3: Evaluate other options.

- (B) "Nothing wrong" in squatting – not the thesis, just a side note. - (C) London & Paris history – an illustration, not the thesis. - (D) Manhattan's co-ops – again an example, not the thesis.

Thus, only (A) captures the main thesis.

Answer = A

Quick Tip

To identify the thesis, focus on repeated claims with future projections. Examples and history serve as support, not the thesis.

Q96. What is the most appropriate title for this passage?

A) Kiebra–Squatters' Paradise of Nairobi

B) Squatters of the World

C) Squatter Cities

D) Future of Squatters

Correct Answer: (A) Kiebra–Squatters' Paradise of Nairobi

Solution:

Step 1: Identify the focus of the passage.

The passage begins with: *"Come with me to Kiebra: the largest shantytown in sub-Saharan Africa..."* and continues to describe its economy, population, challenges, and opportunities. This shows that the passage is mainly centered on **Kiebra itself**.

Step 2: Analyze the scope of options.

- (A) Kiebra–Squatters' Paradise of Nairobi – Directly names the subject and location of the passage. Matches perfectly. - (B) Squatters of the World – Too broad. The passage does mention global squatting but focuses primarily on Kiebra. - (C) Squatter Cities – Generalized. Doesn't capture the detailed description of Kiebra. - (D) Future of Squatters – The passage makes projections, but that is only one part of the discussion, not the central theme.

Step 3: Conclude.

Since the majority of the passage is devoted to describing life, economy, and history of Kiebra, the most appropriate title is (A).

Answer = A

Quick Tip

When choosing titles, always prefer the option that is specific to the main subject of the passage, rather than one that is too general or only touches on a sub-point.

Q97. The ____ managed to deceive the entire village.

A) renegade

B) sycophant

C) charlatan

D) actor

Correct Answer: (C) charlatan

Solution:

Step 1: Understand the word meanings.

- Renegade: one who deserts and betrays an organization. - Sycophant: a person who flatters or acts submissively to gain advantage. - Charlatan: a person who falsely claims to have knowledge or skill; a deceiver. - Actor: one who performs roles on stage or in films.

Step 2: Match with the sentence.

The sentence context is about ”deceiving the entire village”. The best word is ”charlatan” because it refers directly to deception.

Answer = C

Quick Tip

Always choose the word whose core definition matches the action in the sentence. Here, ”deceive” points directly to ”charlatan”.

Q98. She ordered the taxi driver, Driver faster, _____?

A) won’t you

B) will you

C) you must

D) can’t you

Correct Answer: (D) can’t you

Solution:

Step 1: Recognize it is a question tag.

The sentence “She ordered the taxi driver” is in the past tense, but the command “Drive faster” requires a negative tag.

Step 2: Eliminate options.

- ”won’t you” $\rightarrow$ future tense, does not match. - ”will you” $\rightarrow$ used for polite requests, not strong orders. - ”you must” $\rightarrow$ not a tag, but a statement. - ”can’t you” $\rightarrow$ fits the order, matches tone.

Answer = D

Quick Tip

For question tags, check verb tense and sentence type. Imperatives often take "will you?" (polite) or "can't you?" (emphatic).

Q99. Her written statements failed to be consistent ____ what she had said earlier.

A) on

B) with

C) in

D) to

Correct Answer: (B) with

Solution:

Step 1: Rule of collocation.

The correct preposition used with "consistent" is always "with".

Step 2: Check in sentence.

"Consistent with" means in agreement or harmony with. So, "consistent with what she had said earlier" is grammatically correct.

Answer = B

Quick Tip

Prepositions often follow fixed patterns with adjectives. Learn collocations like "consistent with," "interested in," "responsible for."

Q100. Choose the antonym nearest in meaning to the word ”Facetious”.

A) serious

B) uneasy

C) pleasant

D) cross

Correct Answer: (A) serious

Solution:

Step 1: Meaning of ”Facetious”.

”Facetious” means treating serious issues with deliberate, inappropriate humor (joking when seriousness is needed).

Step 2: Find antonym.

- (A) Serious → opposite of humorous or joking → correct. - (B) Uneasy → unrelated to humor/seriousness. - (C) Pleasant → synonym of nice, not an antonym. - (D) Cross → means angry, not opposite of facetious.

Answer = A

Quick Tip

For antonym questions, focus on the “core tone” of the word. Facetious = joking → opposite = serious.

Q101. Which one of the following alternatives is spelt correctly?

A) extacy

B) ecstasy

C) ecstacy

D) extasy

Correct Answer: (B) ecstasy

Solution:

Step 1: Identify the correct spelling.

The correct spelling of the word meaning "a state of overwhelming happiness or delight" is **ecstasy**.

Step 2: Evaluate options.

- extacy (A) → incorrect. - ecstasy (B) → correct spelling. - ecstacy (C) → incorrect, common misspelling. - extasy (D) → incorrect.

Answer = B

Quick Tip

Spelling questions often test common misspellings (like "ecstacy"). Always rely on root knowledge or recall from usage.

Q102. Choose the correct alternative that best explains the following idiom: "Writing on the wall."

A) graffiti

B) obvious truth

C) foreboding

D) prediction

Correct Answer: (B) obvious truth

Solution:

Step 1: Meaning of the idiom.

The phrase "writing on the wall" originates from the Biblical story of Belshazzar's feast and is used to mean "a clear sign that something (usually bad) is going to happen."

Step 2: Compare with options.

- (A) graffiti → literal meaning, not idiomatic. - (B) obvious truth → correct, because the idiom refers to something that is evident and unavoidable. - (C) foreboding → close, but

slightly different; foreboding means fear, not necessarily clear sign. - (D) prediction → not the same; prediction may not be obvious.

Answer = B

Quick Tip

Idioms are figurative. Don't confuse literal meanings (graffiti) with idiomatic ones (clear signs).

Q103. Although many of the members were ___ about the impending deal, others were ___ about the benefits it would bring.

A) euphoric ____ confident

B) optimistic ____ dubious

C) angry ____ skeptical

D) confused ____ pleased

Correct Answer: (B) optimistic dubious

Solution:

Step 1: Pay attention to "Although."

This indicates a contrast, so the two blanks must show opposing attitudes.

Step 2: Evaluate options.

- (A) euphoric/confident → both positive, no contrast. - (B) optimistic/dubious → opposite attitudes (hopeful vs doubtful). Correct. - (C) angry/skeptical → both negative, no true contrast. - (D) confused/pleased → not strong opposites in this context.

Answer = B

Quick Tip

When “although” appears, expect contrasting ideas. Look for antonym-like pairs, not similar tones.

Q104. Select the lettered pair that best expresses a relationship similar to that expressed by the original pair: BROOK : RIVER

A) vein : artery

B) path : highway

C) yard : alley

D) pen : paper

Correct Answer: (B) path : highway

Solution:

Step 1: Define the relationship.

A ”brook” is a small stream, and a river is a larger form of flowing water. So the relation is: *smaller version* $\rightarrow$ *larger version*.

Step 2: Test options.

- (A) vein : artery $\rightarrow$ different blood vessels, but not size comparison. - (B) path : highway $\rightarrow$ correct, since a path is a smaller version of a highway. - (C) yard : alley $\rightarrow$ unrelated concepts. - (D) pen : paper $\rightarrow$ instrument vs object, unrelated.

Answer = B

Quick Tip

In analogy questions, determine if the relation is of type: size, function, cause-effect, or category. Here, it is a size/intensity relation.

Q105. ‘But for cancer I would not have given up smoking’. ‘But’ in the sentence is ___.

A) an adverb

B) a preposition

C) an adjective

D) a verb

Correct Answer: (B) a preposition

Solution:

Step 1: Read the construction.

The words appear as **but for** cancer. The unit "but for" functions together.

Step 2: Recall the rule.

"**but for**" is a fixed prepositional phrase meaning *except for / if it were not for*. Prepositions take an **object** (here, *cancer*).

Step 3: Substitute to verify.

Replace with "*except for*": *Except for cancer, I would not have given up smoking.* The meaning remains.

Step 4: Eliminate other parts of speech.

Not an adverb/adjective (no modification of verb/noun), and not a verb (no action expressed).

'But' (in 'but for') is a preposition.

Quick Tip

When "but" is followed by "for" (*but for + noun*), treat it as a preposition meaning "except for / if not for."

Q106. Here is my list oranges, potatoes, garbage bags and a tooth brush. After the word 'list' identify which one of the following is required.

A) colon

B) quotation marks

C) semicolon

D) none of these

Correct Answer: (A) colon

Solution:

Step 1: Rule for introducing items.

Use a **colon** after an independent clause to introduce a list. "Here is my list" is a complete clause.

Step 2: Corrected sentence (with small fixes).

Here is my list: oranges, potatoes, garbage bags, and a ***toothbrush****.*

(*toothbrush* is one word; the serial/Oxford comma before "and" is stylistic but recommended.)

Step 3: Eliminate other options.

Quotation marks aren't used to introduce lists; semicolons are for complex lists (items with internal commas), which we don't have.

Place a colon after 'list'.

Quick Tip

Introduce lists with a colon after a complete clause; reserve semicolons for list items that already contain commas.

Q107. Identify the grammatical error in the sentence below by choosing one alternative.

My main reason for learning pharmacy was that my brother was one.

A) dangling modifier

B) faulty parallelism

C) faulty reference by pronoun

D) the sentence is correct

Correct Answer: (C) faulty reference by pronoun

Solution:

Step 1: Find the pronoun and its antecedent.

The pronoun **one** should refer to a previously mentioned countable noun of the same kind.

Step 2: Check the antecedent given.

The only candidate is "*pharmacy*," which is a **field of study** (uncountable here), not a person. The writer actually means "pharmacist."

Step 3: Provide a clear correction.

Either make the antecedent match the pronoun: *My main reason for becoming a **pharmacist** was that my brother was **one**.*

Or keep the field and change the complement: *My main reason for studying **pharmacy** was that my brother was a **pharmacist**.*

Step 4: Eliminate other labels.

No dangling modifier; the structure is fine. Not parallelism—only the reference is faulty.

Error: unclear/wrong antecedent for the pronoun 'one'.

Quick Tip

A pronoun like "one" must echo a clear, countable noun of the same type in the previous clause (e.g., "engineer... one," "teacher... one").

Q108. For the following pair of sentences choose the correct option.

I. The team quickly took **their** positions on the field.

II. The team quickly took **its** position on the field.

A) the first sentence is wrong

B) the second sentence is wrong

C) both are correct

D) both are wrong

Correct Answer: (A) the first sentence is wrong

Solution:

Step 1: Agreement with collective nouns.

In formal (especially American) usage, a collective noun like **team** is treated as **singular** when acting as one unit. Therefore, the matching possessive pronoun is **its**, not **their**.

Step 2: Apply to the sentences.

- Sentence I uses the plural pronoun "their," which disagrees with the singular collective noun "team" $\Rightarrow$ **incorrect**$(perexamconvention)$.

- Sentence II uses "its," which agrees with "team" $\Rightarrow$ **grammatically correct**.$(\backslash position"canbereadcollectivelyastheteam's formation/placement.)$

Note: In British English, collectives can take plural agreement when the members are viewed individually, but this test follows the singular-agreement rule.

$$\boxed{\text{Only Sentence II is correct} \Rightarrow \text{Option A}}$$

Quick Tip

For exams, treat *team, committee, family* as singular unless the question explicitly signals plural sense; use *its*, not *their*.

Q109. Choose the erroneous underlined segment or option 'd' if no error.

He carried <u>his clothes</u> (a) in <u>a black heavy</u> (b) <u>steel trunk</u> (c).

A) a

B) b

C) c

D) d

Correct Answer: (B) b

Solution:

Step 1: Understand the task.

We must find which underlined segment causes a grammatical/collocation error in the sentence and mark it.

Step 2: Check segment (a) — "his clothes".

The possessive determiner "his" + plural count noun "clothes" is correct and idiomatic. No error here.

Step 3: Check segment (c) — "steel trunk".

Material adjectives typically come *immediately* before the head noun (order: opinion ⇒ size/weight ⇒ age ⇒ shape ⇒ color ⇒ origin ⇒ **material** ⇒ purpose ⇒ noun).
"steel trunk" (material + noun) is therefore correct.

Step 4: Check segment (b) — "a black heavy".

When multiple adjectives modify a noun, the conventional order places *size/weight* before *color*. Hence, it should be *"a heavy black steel trunk"*, not *"a black heavy steel trunk"*.
Therefore segment (b) violates the standard adjective order rule (weight before color) ⇒ (b) is erroneous.

Step 5: Corrected sentence (for clarity).

*He carried his clothes in a **heavy black** steel trunk.*

Step 6: Why the other options are wrong.

(a) is grammatically fine; (c) correctly places the material adjective next to the noun; there is an error, so (d) "no error" is invalid.

Answer: (B) b — use "heavy black", not "black heavy".

Quick Tip

Remember the common adjective order: opinion ⇒ size/weight ⇒ age ⇒ shape ⇒ color ⇒ origin ⇒ material ⇒ purpose ⇒ noun.
So say "a *large round red Italian wooden* dining table", not "red large Italian wooden...".

Q110. Choose the erroneous underlined segment or option 'd' if no error.

The corpse (a) had been dead (b) for five days (c).

A) a

B) b

C) c

D) d

Correct Answer: (B) b

Solution:

Step 1: Understand the key word.

A *corpse* by definition is a *dead body*. Saying it "had been dead" is semantically redundant/illogical; a corpse cannot be anything but dead.

Step 2: Analyze each segment.

(a) "The corpse" — correct noun phrase.

(b) "had been dead" — faulty with "corpse"; the past perfect + adjective suggests a change of state, but a corpse has no living state.

(c) "for five days" — correct duration phrase.

Step 3: Provide natural corrections.

Two idiomatic fixes:

(i) Keep "corpse", remove the state adjective: *"The corpse had been there/lying for five days."*

(ii) Keep "had been dead" but change the subject to "body": *"The body had been dead for five days."*

Either approach removes the semantic clash.

Step 4: Note on tense (why past perfect may appear).

Past perfect ("had been") is acceptable if there is a later past reference (e.g., "When the police arrived, the corpse had been lying for five days."). The *error tested here*, however, is the lexical mismatch in (b), not the tense per se.

Answer: (B) b — say “The corpse had been lying for five days.” or “The body had been dead for five

Quick Tip

Avoid tautologies and category errors: words like *corpse*, *widow*, *orphan* already contain state information. Choose verbs/adjectives that add information (“lying”, “found”, “identified”) rather than repeat it (“dead corpse”).

Q111. Identify the odd one.

A) Ashoka was one of the greatest kings.

B) Ashoka was greater than many other kings.

C) Ashoka was the greatest king.

D) Very few kings were as great as Ashoka.

Correct Answer: (C) Ashoka was the greatest king.

Solution:

Step 1: Observe the statements.

Options (A), (B), and (D) compare Ashoka with other kings. They place Ashoka among the great rulers, but not as the single, unmatched greatest.

Step 2: Analyse Option (C).

Option (C) states *“Ashoka was the greatest king”*. This is an absolute superlative, implying there was no king equal to him at all. It does not involve comparison; rather, it gives him the singular position of being the best.

Step 3: Identify the odd one.

Since (C) presents an absolute claim, while the others involve comparisons, (C) is the odd one.

Answer: (C)

Quick Tip

When solving "odd one out" questions, look for the logical relationship: whether the sentence shows comparison, generalisation, or absolute statements. The unique pattern will be the odd one.

Q112. Identify the incorrect one.

A) The coach together with his team was praised.

B) Many a boy is tempted to sing.

C) The king with all his sons were imprisoned.

D) Neither James nor his lawyers were there.

Correct Answer: (C) The king with all his sons were imprisoned.

Solution:

Step 1: Check Option (A).

"The coach together with his team was praised" is correct. The subject is "The coach" (singular), so the verb "was" is correctly used.

Step 2: Check Option (B).

"Many a boy is tempted to sing" is correct. The phrase "many a" is always singular, so it takes the singular verb "is".

Step 3: Check Option (C).

"The king with all his sons were imprisoned." Here, the subject is "The king" (singular). The phrase "with all his sons" is additional information, not part of the main subject. Thus, the verb should be singular: *"was imprisoned"*. The use of "were" is incorrect.

Step 4: Check Option (D).

"Neither James nor his lawyers were there." This is correct. When subjects are joined by "neither...nor", the verb agrees with the nearest subject. Here, "his lawyers" is plural, so "were" is correct.

Answer: (C)

Quick Tip

Always identify the true subject. Extra phrases like "with…", "together with…", or "along with…" do not affect subject-verb agreement. The verb must match the main subject only.

Q113. Identify the sentence that gives the same meaning as the following.
He said, "Yes, I'll come and see you."

A) He accepted that he will come and see me.
B) He said that he will come and see me.
C) He agreed that he will come and see me.
D) He said that he would come and see me.

Correct Answer: (D) He said that he would come and see me.

Solution:
Step 1: Convert to indirect speech.
The direct speech is: "Yes, I'll come and see you." In indirect speech, pronouns and tense change.
Step 2: Apply tense change.
"I'll" = "I will" $\rightarrow$ changes to "he would" (since the reporting verb is in past tense).
"You" changes to "me" (since the listener is the speaker).
Thus, the correct transformation is: *"He said that he would come and see me."*
Step 3: Check other options.
- Option (A): "He accepted that he will come…" — wrong because tense is not changed and "accepted" changes meaning.
- Option (B): "He said that he will come…" — incorrect tense; "will" should become "would."
- Option (C): "He agreed that he will come…" — again, "agreed" is not equivalent to "said" and tense is wrong.
- Option (D): Correct in both tense and meaning.

Answer: (D)

Quick Tip

When changing direct to indirect speech, always shift the tense back if the reporting verb is in the past. “Will” becomes “would”, “can” becomes “could”, “may” becomes “might”, etc.

Q114. I had met him ..... year ago

A) a

B) an

C) the

D) none

Correct Answer: (A) a

Solution:

Step 1: Identify the blank position.

The blank comes before the word ”year”. So, we need to insert the correct article before ”year”.

Step 2: Recall article rules.

- ”a” is used before consonant sounds.
- ”an” is used before vowel sounds (a, e, i, o, u).
- ”the” is used when we are referring to something specific or unique.
- ”none” means no article is required.

Step 3: Apply the rule to ’year’.

The word ”year” starts with the letter ”y”, which gives a consonant sound (like ”yuh”). So, the correct article should be ”a”.

Step 4: Construct the correct sentence.

”I had met him a year ago.”

$\boxed{a}$

Quick Tip

Always check the sound of the first letter of the following word, not just the letter itself. For example, ”a university” (because ’u’ sounds like ’yu’), but ”an umbrella”.

Q115. Can you see ..... moon?

A) a

B) an

C) the

D) none

Correct Answer: (C) the

Solution:

Step 1: Identify the noun.

The blank comes before ”moon”. The word ”moon” is a unique object in our sky.

Step 2: Recall article rules.

- ”a” and ”an” are used for non-specific or general items.
- ”the” is used for something unique, specific, or already known.

Step 3: Apply the rule to ’moon’.

There is only one moon for Earth. Since it is unique and universally known, the correct article will be ”the”.

Step 4: Construct the correct sentence.

”Can you see the moon?”

$\boxed{the}$

Quick Tip

Use ”the” for unique natural objects like the sun, the moon, the sky, the earth, etc. This rule helps to quickly identify when ”the” is necessary.

Q116. He is ..... honourable man.

A) a

B) an

C) the

D) none

Correct Answer: (B) an

Solution:

Step 1: Identify the blank position.

The blank comes before the word ”honourable”. We need to decide which article fits correctly here.

Step 2: Recall article rules.

- ”a” is used before words beginning with a consonant sound.
- ”an” is used before words beginning with a vowel sound.
- ”the” is used for something unique or already known.
- ”none” means no article is required.

Step 3: Focus on pronunciation, not spelling.

Although ”honourable” starts with the letter ”h” (a consonant), the ”h” is silent.
So the word begins with a vowel sound: ”onourable”.

Step 4: Apply the rule.

Since it starts with a vowel sound, the correct article is ”an”.

Step 5: Construct the correct sentence.

”He is an honourable man.”

$\boxed{an}$

Quick Tip

When deciding between ”a” and ”an”, always check the sound of the following word. If it begins with a vowel sound (like ”honourable”, ”hour”, ”MBA”), use ”an” even if the first letter is not a vowel.

Q117. ..... people with little patience rarely succeed.

A) a

B) an

C) the

D) none

Correct Answer: (D) none

Solution:

Step 1: Identify the noun.

The word after the blank is ”people”. It is a plural noun used in a general sense.

Step 2: Recall article rules.

- ”a” and ”an” are only used with singular countable nouns.
- ”the” is used when something specific is mentioned.
- Plural nouns used in a general sense (like ”People”, ”Children”, ”Dogs”) do not take any article.

Step 3: Apply the rule.

Here, ”people with little patience” refers to people in general, not any specific group. Therefore, no article is required.

Step 4: Construct the correct sentence.

”People with little patience rarely succeed.”

none

Quick Tip

Do not use ”a” or ”an” with plural nouns. Use ”the” only when talking about a specific group. For general plural nouns, no article is needed.

Q118. Choose the correct arrangement of the following jumbled sentences of a paragraph to make it coherent.

The first sentence is: *Barely a year had elapsed before the Pritzker clan began to squabble.*

L. Under the plan he has until 2011 to distribute the assets among the heirs.
M. The family was no longer a cohesive whole, they wrote and therefore the business needed the kind of transparency a public corporation might have.
N. A year later the family agreed on a governing structure for the Pritzker Organisation, requiring Tom to open the books, hold annual meetings of family shareholders and issue regular financial reports.
O. In summer 2000, Tom’s two brothers and a handful of his cousins sent a letter asking him to restructure the holdings.

A) N M O L
B) M L O N
C) O M N L
D) O N M L

Correct Answer: (D) O N M L

Solution:

Step 1: Identify the logical beginning.

After the opening line ”Barely a year had elapsed...”, the narration must continue with a time reference.

Sentence O starts with ”In summer 2000...” which directly connects with the timeline and initiates the conflict (a letter being written).

Step 2: Find the continuation.

Sentence N begins with ”A year later...”, which logically follows O, continuing the sequence of events by showing the family’s decision to create a governing structure.

Step 3: Add the effect of the decision.

Sentence M explains the family’s lack of cohesion and the need for transparency. This comes naturally after N, because the decision to enforce rules indicates internal issues.

Step 4: Conclude with the final plan.

Sentence L, which discusses the distribution plan until 2011, serves as the concluding remark.

Step 5: Final sequence.

Thus, the correct logical order is:

$$O \Rightarrow N \Rightarrow M \Rightarrow L$$

$$\boxed{ONML}$$

Quick Tip

In jumbled paragraph questions, always look for: 1. Time markers (like ”In summer 2000”, ”A year later”). 2. Cause-effect relationships. 3. The logical concluding sentence.

Q119. "Time to bust some myths about the EPF Organisation, India's only social security fund manager for non-government workers, though what follows is not published on a regular basis. Active membership is just about 5 percent, and only 17 percent of the members account for 84 percent of the balances. That's only Rs. 20000 each! Less than 7 percent have a deposit amount more than 5 lacs!"

Choose the statement closest to the idea expressed in this paragraph.

A) EPF is an efficiently managed organisation about which no one knows correctly.

B) EPF is an inefficient organisation.

C) EPF Organisation takes care of future fund requirements of investors adequately.

D) EPF Organisation does not have enough funds to take care of secure future.

Correct Answer: (B) EPF is an inefficient organisation.

Solution:

Step 1: Analyze the passage.

The passage provides statistical data: - Only 5- 17- The average balance is only Rs. 20,000. - Less than 7

Step 2: Interpret the message.

The data shows a huge imbalance in fund distribution and very low participation. This indicates inefficiency in management and poor coverage.

Step 3: Eliminate incorrect options.

- (A) says EPF is efficient — this contradicts the negative tone.
- (C) suggests EPF meets future needs — again contradicted by the poor numbers.
- (D) talks about "not enough funds" — but the problem is not lack of total funds, rather poor distribution and inefficiency.

Step 4: Select the best option.

Therefore, the closest meaning is that EPF is inefficient.

EPF is an inefficient organisation.

Quick Tip

In inference-based RC questions, focus on the overall tone of the passage. Here, the statistics highlight inefficiency, so the correct choice is the negative option.

Q120. "Two recent World Bank studies on India's rapidly depleting water resources have caused quite a stir. More interesting is how water seems to have become the new focus area for Bank assistance: at $3.2 billion in 2005–08 from a mere $700 million in 1999–04. Within water again, more money is going to rural water, large hydropower projects, and water resource management in poor states."

Choose the statement that summarises the above paragraph best.

A) India's water resources are depleting.

B) The two World Bank studies on India have caused a stir.

C) The World Bank assistance to India for developing water resources has increased more than 4 times for 2005–08 as compared to the prior period.

D) Poorer states of India require water resource management projects such as rural water, large hydropower projects.

Correct Answer: (D) Poorer states of India require water resource management projects such as rural water, large hydropower projects.

Solution:

Step 1: Analyze the passage.

The paragraph highlights three main points: 1. World Bank studies show India's water resources are depleting. 2. World Bank has significantly increased financial assistance for water-related projects. 3. The focus of this assistance is on rural water, hydropower, and water management in poor states.

Step 2: Compare with options.

- (A) "India's water resources are depleting" $\rightarrow$ True, but this is only the background, not the main point.

- (B) “Two studies have caused a stir” → Again true, but this is just the introduction, not the summary.
- (C) “Assistance has increased more than 4 times” → A fact from the paragraph, but still a detail, not the essence.
- (D) “Poorer states of India require water resource management projects such as rural water, large hydropower projects” → This captures the core message about where the World Bank’s focus and funds are being directed.

Step 3: Select the best summary.
Since summaries should capture the central theme rather than background or details, option (D) is the most appropriate.

Poorer states of India require water resource management projects.

Quick Tip

When choosing a summary, avoid options that only highlight background information or isolated facts. Always pick the one that captures the **central idea and purpose** of the passage.

Q121. The International Date Line is located

A) On the Equator
B) Along 0 degree Longitude
C) Along 180 degree Longitude
D) At Greenwich in UK

Correct Answer: (C) Along 180 degree Longitude

Solution:
Step 1: Recall the definition.

The International Date Line (IDL) is an imaginary line on Earth that marks the place where each new calendar day begins.

Step 2: Location.

The IDL is located approximately along the 180° meridian (Longitude), opposite the Prime Meridian (0° Longitude at Greenwich, UK).

Step 3: Adjustments.

Although the line deviates slightly around some countries and islands to accommodate political and economic boundaries, its main reference remains the 180° longitude.

Step 4: Final Answer.

Therefore, the correct location is:

$$\boxed{180^\circ \text{ Longitude}}$$

Quick Tip

Remember: 0° longitude is the Prime Meridian at Greenwich, while the International Date Line lies roughly opposite it at 180°.

Q122. The Ramon Magsaysay Award is named after the former President of?

A) Thailand

B) Philippines

C) Indonesia

D) None of these

Correct Answer: (B) Philippines

Solution:

Step 1: Background.

The Ramon Magsaysay Award is regarded as Asia's Nobel Prize and was established in 1957.

Step 2: Origin.

It is named in honor of Ramon Magsaysay, the former President of the Philippines, who was admired for his integrity and public service.

Step 3: Purpose.

The award is given to individuals or organisations in Asia for outstanding contributions in leadership, public service, literature, journalism, and community service.

Step 4: Correct country.

Thus, the answer is:

$$\boxed{\text{Philippines}}$$

Quick Tip

Remember: Ramon Magsaysay was the President of the Philippines, and the award in his name is one of the most prestigious recognitions in Asia.

Q123. What level of noise is considered permissible in human habitats?

A) Upto 50 decibels

B) Less than 40 decibels

C) Upto 30 decibels

D) Less than 20 decibels

Correct Answer: (A) Upto 50 decibels

Solution:

Step 1: Understanding permissible noise.

Noise pollution standards are defined to maintain health and comfort in residential areas. The level is measured in decibels (dB).

Step 2: Permissible levels in residential areas.

For human habitats (residential zones), the permissible limit generally lies around 45–50 decibels during the daytime, as per environmental safety standards.

Step 3: Elimination of wrong options.

- (B) Less than 40 dB $\rightarrow$ too low; normal human conversation itself is about 60 dB.
- (C) Upto 30 dB $\rightarrow$ even quieter than a whisper, not realistic.
- (D) Less than 20 dB $\rightarrow$ close to silence, impractical.

Step 4: Correct option.

Thus, the safe permissible level is:

$$\boxed{50 \text{ decibels}}$$

Quick Tip

Typical conversation is about 60 dB. Thus, residential permissible limits are lower than this (around 50 dB) to avoid health issues due to prolonged exposure.

Q124. The Indian city which has a natural harbour and is also one of the largest Indian ports is

A) Mumbai

B) Kolkata Haldia

C) Cochin

D) Vishakhapatnam

Correct Answer: (A) Mumbai

Solution:

Step 1: Understanding natural harbours.

A natural harbour is a coastal water body where ships can dock safely due to natural geographic features without the need for extensive artificial construction.

Step 2: Largest natural harbour city in India.

Mumbai (formerly Bombay) is located on the western coast of India and has one of the finest natural harbours.

Step 3: Port significance.

- Mumbai port handles a large share of India's international trade. - It has strategic importance both commercially and historically.

Step 4: Final Answer.

Thus, the Indian city is:

$$\boxed{\text{Mumbai}}$$

Quick Tip

Natural harbours are rare. In India, Mumbai and Cochin are examples, but Mumbai is the largest and most important.

Q125. If saccharine, an artificial sweetener which is 70 times sweeter than sugar, is kept in the open, which one of these insects will it attract first?

A) ants

B) bees

C) house-flies

D) none of the above

Correct Answer: (D) none of the above

Solution:

Step 1: Nature of saccharine.

Saccharine is an artificial sweetener, nearly 300 times sweeter than sugar (commonly written as 70x to 300x depending on reference).

Step 2: Effect on insects.

Although it tastes sweet to humans, saccharine is chemically different from natural sugars like glucose, sucrose, or fructose.

Step 3: Insect attraction.

Ants, bees, and houseflies are attracted to natural sugars for their energy needs. Since saccharine is not metabolizable by insects, they will not be attracted to it.

Step 4: Correct option.

Thus, no insect listed will be attracted to saccharine.

None of the above

Quick Tip

Artificial sweeteners may taste sweet to humans but insects, which rely on real sugars for metabolism, are not attracted to them.

Q126. When a Pepsi bottle is opened, the gas fizzes out because it obeys

A) Hess's Law

B) Henry's Law

C) Kohlrausch's Law

D) None of the above

Correct Answer: (B) Henry's Law

Solution:

Step 1: Recall Henry's Law.

Henry's Law states that the solubility of a gas in a liquid is directly proportional to the pressure of the gas above the liquid.

Step 2: Application to Pepsi.

- In sealed Pepsi bottles, carbon dioxide gas is kept under high pressure, dissolving it in the liquid. - When the bottle is opened, pressure above the liquid decreases suddenly. - As a result, excess dissolved gas escapes in the form of fizz.

Step 3: Elimination of wrong options.

- Hess's Law: related to enthalpy change in reactions.

- Kohlrausch's Law: deals with conductivity of electrolytes.

Hence, irrelevant here.

Step 4: Final Answer.

Thus, the fizzing is due to:

$$\boxed{\text{Henry's Law}}$$

Quick Tip

Remember: **Fizz in cold drinks = Henry's Law**. Higher pressure increases gas solubility; lowering pressure releases the gas.

Q127. Television signals from transmission towers are restricted to a limited area because

A) the signals become weak with distance

B) there is interference from other signals

C) of the Earth's curvature

D) the atmosphere absorbs the signals

Correct Answer: (C) of the Earth's curvature

Solution:

Step 1: Nature of TV signals.

Television signals are electromagnetic waves that generally travel in straight lines. Such waves are called **line-of-sight signals**.

Step 2: Limitation due to Earth's shape.

Because the Earth is spherical, line-of-sight signals cannot bend around it. Beyond the horizon, the signals are blocked by the curvature of the Earth.

Step 3: Elimination of wrong options.

- (A) Weakening with distance happens, but signals can be boosted with repeaters.

- (B) Interference occurs but does not restrict signals to a small area.

- (D) The atmosphere does not absorb TV signals significantly.

Step 4: Correct answer.

Thus, the main restriction is because of Earth's curvature.

Earth's curvature limits TV signals.

Quick Tip

Remember: TV and FM radio signals are line-of-sight. That's why tall transmission towers and satellites are used to extend their range.

Q128. Who is the author of *Food, Nutrition and Poverty in India*?

A) V.K.R.V. Rao

B) T.S. Eliot

C) Mark Twain

D) Evelyn Waugh

Correct Answer: (A) V.K.R.V. Rao

Solution:

Step 1: Identify the book.

"Food, Nutrition and Poverty in India" is an important academic work in the field of economics and social policy in India.

Step 2: Author details.

It was authored by **V.K.R.V. Rao**, a renowned Indian economist and educationist who also served as a Union Minister.

Step 3: Eliminate wrong options.

- T.S. Eliot → English poet, not connected to Indian economics.

- Mark Twain → American novelist, unrelated.

- Evelyn Waugh → British novelist, unrelated.

Step 4: Final Answer.

Thus, the correct author is:

V.K.R.V. Rao

Quick Tip

For book-based GK questions, eliminate authors whose field (like literature or novels) does not match the subject (like economics, science, or politics).

Q129. Internet is controlled by

A) The U.S.A

B) The U.K.

C) Switzerland

D) None of the above

Correct Answer: (D) None of the above

Solution:

Step 1: Understanding internet governance.

The Internet is a global network, and no single country fully controls it.

Step 2: Key organisations.

- The **ICANN** (Internet Corporation for Assigned Names and Numbers) manages domain names and IP addresses.
- The **IETF** (Internet Engineering Task Force) develops protocols.
- The **W3C** (World Wide Web Consortium) sets web standards. These organisations involve members from many countries.

Step 3: Eliminating options.

- USA → Plays a major role but does not control the entire internet.

- UK, Switzerland → Same reason, no single control.

Step 4: Correct conclusion.

Hence, the internet is not controlled by any single nation.

None of the above

Quick Tip

The internet is governed by multiple international bodies, not a single country. Always choose "None of the above" if options suggest one-country control.

Q130. Identify the incorrect statement.

A) A tsunami is a series of waves generated when water in a lake or the sea is rapidly displaced on a massive scale.

B) A tsunami is an after-effect of an earthquake on the seabed.

C) A tsunami has smaller amplitude (wave height) offshore and a very long wavelength.

D) None of the above

Correct Answer: (D) None of the above

Solution:

Step 1: Examine each statement.

- (A) Correct → Tsunamis are indeed generated by sudden displacement of water, often caused by earthquakes, volcanic eruptions, or landslides.

- (B) Correct → Most tsunamis occur as after-effects of seabed earthquakes, where tectonic plates shift suddenly.

- (C) Correct → Tsunamis in deep sea have small amplitude but extremely long wavelength, which grows taller only near the coast.

Step 2: Conclude.

Since all three statements (A, B, C) are correct, none of them are incorrect. Hence, option (D) "None of the above" is correct.

None of the above

Quick Tip

In tsunami-related questions, remember: small height offshore, very long wavelength, and destructive high waves when they approach shallow coastal waters.

Q131. The largest chunk of revenue for the Union government comes from

A) Income Tax

B) Central Excise

C) Corporation Tax

D) Customs Duty

Correct Answer: (B) Central Excise

Solution:

Step 1: Sources of Union Government revenue.

The Union Government of India collects revenue from direct taxes (Income tax, Corporation tax) and indirect taxes (Excise, Customs, GST in the present system).

Step 2: Historically before GST (2005 era).

At the time of this question (pre-GST), Central Excise Duty (levied on manufactured goods within India) contributed the largest share to Union Government revenue.

Step 3: Eliminate wrong options.

- Income tax and corporation tax were significant, but not the largest at that time.
- Customs duty was lower compared to excise duty.

Step 4: Correct answer.

Thus, the largest revenue source (at that time) was:

$$\boxed{\text{Central Excise}}$$

Quick Tip

Always note the timeline: Before GST (2017), Central Excise was the largest source. After GST reforms, the structure has changed.

Q132. India test-fired three medium range surface-to-air missiles in Oct. 2005. Name the missile.

A) Trishul

B) Nag

C) Dhanush

D) Akash

Correct Answer: (D) Akash

Solution:

Step 1: Recall missile categories.

- **Trishul** → Short-range surface-to-air missile.
- **Nag** → Anti-tank guided missile.
- **Dhanush** → Ship-launched ballistic missile.
- **Akash** → Medium-range surface-to-air missile (SAM).

Step 2: Context of Oct. 2005 test.

In October 2005, India successfully test-fired three Akash missiles, developed by DRDO under the Integrated Guided Missile Development Programme (IGMDP).

Step 3: Confirm classification.

Akash is capable of targeting aircraft within a range of about 25–30 km, making it a medium-range SAM.

Step 4: Final Answer.

Thus, the missile tested was:

$$\boxed{\text{Akash}}$$

Quick Tip

Match missile names with their category: Trishul (short-range SAM), Akash (medium-range SAM), Nag (anti-tank), Prithvi/Dhanush (ballistic).

Q133. How many calories are there in one litre of water?

A) 1000 calories

B) 100 calories

C) 1 calorie

D) None

Correct Answer: (D) None

Solution:

Step 1: Define calorie.

A calorie is the amount of heat required to raise the temperature of 1 gram of water by 1°C.

Step 2: Check if water contains calories.

Pure water does not contain carbohydrates, fats, or proteins, which are the actual sources of energy (calories).

Step 3: Common misconception.

Some confuse the heat definition of calorie with dietary calories. But in food science, water has **0 calories**.

Step 4: Correct option.

Thus, there are no calories in 1 litre of water.

$\boxed{0 \text{ calories (None)}}$

Quick Tip

Water has no energy value, so it contributes zero calories to the diet.

Q134. The city closest to the epicenter of the devastating earthquake that hit Pakistan & India in October 2005 is

A) Srinagar

B) Balakot

C) Muzaffarabad

D) Islamabad

Correct Answer: (C) Muzaffarabad

Solution:

Step 1: Recall the earthquake event.

On 8th October 2005, a massive earthquake measuring 7.6 on the Richter scale struck Pakistan-administered Kashmir and parts of northern India.

Step 2: Epicenter location.

The epicenter was located near Muzaffarabad in Pakistan-administered Kashmir.

Step 3: Eliminate wrong options.

- Srinagar $\rightarrow$ Affected, but not the closest.
- Balakot $\rightarrow$ Severely damaged, but slightly away from epicenter.
- Islamabad $\rightarrow$ Felt the tremors, but farther from epicenter.

Step 4: Correct city.

Thus, the city closest to the epicenter is:

$\boxed{\text{Muzaffarabad}}$

Quick Tip

Always connect earthquake questions with their epicenter. For the 2005 South Asia earthquake, remember Muzaffarabad.

Q135. The CDMA mobile services from BSNL is

A) Tarang

B) Cell One

C) Idea

D) Orange

Correct Answer: (A) Tarang

Solution:

Step 1: Recall BSNL mobile services.

BSNL (Bharat Sanchar Nigam Limited) launched two major services: - **Cell One** $\rightarrow$ GSM-based mobile service. - **Tarang** $\rightarrow$ CDMA-based mobile service.

Step 2: Eliminate wrong options.

- (B) Cell One $\rightarrow$ GSM, not CDMA.

- (C) Idea $\rightarrow$ Private telecom operator, not BSNL.

- (D) Orange $\rightarrow$ International brand, not BSNL.

Step 3: Correct option.

Thus, the CDMA service of BSNL is:

$$\boxed{\text{Tarang}}$$

Quick Tip

BSNL used **Cell One** for GSM services and **Tarang** for CDMA services. Always distinguish between the two.

Q136. The highest ranking country for 2005–06 in ”Global Competitiveness Report” of the World Economic Forum is

A) Finland

B) U.S.A

C) Singapore

D) U.K

Correct Answer: (C) Singapore

Solution:

Step 1: Recall the Global Competitiveness Report.

The World Economic Forum (WEF) publishes the Global Competitiveness Report annually, ranking countries based on economic performance, infrastructure, institutions, and efficiency.

Step 2: Year 2005–06 ranking.

In the 2005–06 report, **Singapore** secured the top position, ahead of Finland and the U.S.A.

Step 3: Eliminate wrong options.

- Finland $\rightarrow$ ranked high but not the top.
- U.S.A $\rightarrow$ dropped in rankings that year.
- U.K $\rightarrow$ not the top performer.

Step 4: Final Answer.

Thus, the highest-ranking country was:

$$\boxed{\text{Singapore}}$$

Quick Tip

Singapore consistently ranks high in global competitiveness due to its strong infrastructure, governance, and efficient economy.

Q137. Which two independent nations does the 17th Parallel separate?

A) North and South Korea

B) North and South Vietnam

C) East and West Germany

D) Mexico and Panama

Correct Answer: (B) North and South Vietnam

Solution:

Step 1: Definition of the 17th Parallel.

The 17th Parallel North is a circle of latitude that was used as the provisional military demarcation line between North and South Vietnam during the Cold War.

Step 2: Historical context.

- After the Geneva Accords (1954), Vietnam was temporarily divided along the 17th Parallel.
- North Vietnam was controlled by communists under Ho Chi Minh. - South Vietnam was backed by Western allies.

Step 3: Elimination of wrong options.

- Korea $\rightarrow$ divided along the 38th Parallel, not the 17th.
- Germany $\rightarrow$ divided into East/West by political boundaries, not a parallel.
- Mexico and Panama $\rightarrow$ unrelated.

Step 4: Correct answer.

Thus, the 17th Parallel separated:

$$\boxed{\text{North and South Vietnam}}$$

Quick Tip

Remember: 38th Parallel $\rightarrow$ Korea; 17th Parallel $\rightarrow$ Vietnam; 23.5° $\rightarrow$ Tropic of Cancer; 66.5° $\rightarrow$ Arctic Circle.

Q138. In the ”One by Six” rule of Income Tax, it is mandatory to file Income Tax Returns if you possess

A) television

B) gold

C) credit card

D) passport

Correct Answer: (C) credit card

Solution:

Step 1: Understanding the ”One by Six” rule.

The rule (introduced in early 2000s) mandated that if a person satisfied any one of six specified conditions, they had to file Income Tax returns regardless of income level.

Step 2: The six conditions included.

- Ownership of a credit card.
- Ownership of a motor vehicle.
- Membership of a club with entrance fees above a certain limit.
- Ownership of immovable property.
- Foreign travel.
- Telephone connections.

Step 3: Correct option here.

Among the given choices, “credit card” was one of the six specified conditions.

Credit Card

Quick Tip

The ”One by Six” rule was aimed at expanding the tax base by targeting individuals with indicators of high spending, even if income was not declared.

Q139. The Kyoto Protocol pertains to

A) banning the hunting of whales

B) reducing greenhouse gas emissions

C) securing the release of circus animals

D) disallowing civilian airports for military use

Correct Answer: (B) reducing greenhouse gas emissions

Solution:

Step 1: Define Kyoto Protocol.

The Kyoto Protocol, adopted in 1997 and enforced in 2005, is an international treaty under the United Nations Framework Convention on Climate Change (UNFCCC).

Step 2: Main aim.

Its central objective is to commit industrialized nations to reduce emissions of greenhouse gases (GHGs) such as carbon dioxide, methane, and nitrous oxide.

Step 3: Eliminate wrong options.

- (A) Hunting of whales $\rightarrow$ regulated by IWC, not Kyoto Protocol.
- (C) Circus animals $\rightarrow$ unrelated.
- (D) Military airport use $\rightarrow$ unrelated.

Step 4: Correct answer.

Thus, the Kyoto Protocol is focused on:

$$\boxed{\text{Reducing greenhouse gas emissions}}$$

Quick Tip

Remember: Kyoto Protocol $\rightarrow$ binding targets for developed countries to reduce GHG emissions. Paris Agreement (2015) $\rightarrow$ successor with broader participation.

Q140. The riots spreading across France in 2005 were caused by

A) Al Qaeda

B) French Nationalists

C) Racial tensions among Paris' Immigrants

D) France's position in European Union

Correct Answer: (C) Racial tensions among Paris' Immigrants

Solution:

Step 1: Recall the 2005 France riots.

In October–November 2005, France experienced widespread riots, particularly in suburbs of Paris.

Step 2: Root cause.

The riots were sparked by the deaths of two immigrant youths fleeing police, which ignited racial tensions and resentment among marginalized immigrant communities.

Step 3: Eliminate wrong options.

- (A) Al Qaeda $\rightarrow$ no link.
- (B) French Nationalists $\rightarrow$ not the main trigger.
- (D) EU position $\rightarrow$ irrelevant.

Step 4: Correct cause.

Hence, the riots were due to:

$$\boxed{\text{Racial tensions among Paris' Immigrants}}$$

Quick Tip

Urban unrest in France often links to issues of unemployment, discrimination, and integration of immigrant communities.

Q141. One of the UK's leading telecom companies and sponsor of the England cricket team is

A) British Telecom

B) Airtel

C) AT&T

D) Vodafone

Correct Answer: (D) Vodafone

Solution:

Step 1: Recall sponsorship.

Vodafone, one of the UK's leading telecom companies, has been a major corporate sponsor in sports.

Step 2: Cricket sponsorship.

In the mid-2000s, Vodafone was a well-known sponsor of the England cricket team, enhancing its brand presence internationally.

Step 3: Eliminate wrong options.

- (A) British Telecom $\rightarrow$ telecom company, but not the sponsor of England cricket.
- (B) Airtel $\rightarrow$ Indian telecom operator.
- (C) AT&T $\rightarrow$ American company.

Step 4: Correct answer.

Thus, the sponsor was:

$$\boxed{\text{Vodafone}}$$

Quick Tip

Link cricket sponsorships with brand visibility. Vodafone has sponsored cricket in both the UK (England team) and India (Indian cricket, IPL).

Q142. The price of any currency in the international market is determined by

A) The World Bank

B) The demand for goods and services provided by the country

C) The amount of gold that country has in reserve

D) The economic stability of that country

Correct Answer: (D) The economic stability of that country

Solution:

Step 1: Basis of currency value.

The value of a currency is primarily determined by the **economic stability, growth prospects, and confidence in the financial system** of that country.

Step 2: Factors influencing value.

- Stable inflation and low fiscal deficit $\rightarrow$ stronger currency.
- Political stability and consistent policies $\rightarrow$ confidence in international markets.
- Foreign investment inflows and trade balance also matter, but are tied to economic stability.

Step 3: Elimination of wrong options.

- (A) World Bank $\rightarrow$ does not fix exchange rates.
- (B) Demand for goods/services $\rightarrow$ important but indirect.
- (C) Gold reserves $\rightarrow$ outdated system; not true in the floating exchange era.

Step 4: Correct answer.

Hence, the key factor is:

$$\boxed{\text{Economic stability of the country}}$$

Quick Tip

In modern floating exchange rate systems, currency value reflects market confidence in a country's economy, not gold reserves.

Q143. The "Whistle Blower Bill" was passed due to pressure created by the murder of

A) Madhumita Shukla

B) Satyendra Dubey

C) Naina Sharma

D) None of these

Correct Answer: (B) Satyendra Dubey

Solution:

Step 1: Context.

Satyendra Dubey, an Indian Engineering Service officer, exposed corruption in the Golden Quadrilateral highway project.

Step 2: Incident.

He was murdered in 2003 after writing to the Prime Minister's Office about corruption, requesting his identity be kept confidential.

Step 3: Legislative impact.

His death sparked nationwide demand for protection of whistleblowers, leading to the introduction of the **Whistle Blowers Protection Bill**.

Satyendra Dubey

Quick Tip

Always connect "Whistle Blower Bill" with Satyendra Dubey. He is remembered as a martyr for transparency and accountability in governance.

Q144. The alleged corruption scam of UN's $64 billion in Iraq disclosed in Nov, 2005 is related to

A) Iraq war crimes

B) Iraqi WMD

C) Saddam Hussein

D) Food-for-oil programme

Correct Answer: (D) Food-for-oil programme

Solution:

Step 1: Background.

The UN's "Oil-for-Food Programme" (1996–2003) allowed Iraq to sell oil in exchange for food and humanitarian needs under international sanctions.

Step 2: Scam details.

In 2005, a massive corruption scandal was revealed involving mismanagement and bribery in the $64 billion programme. Several UN officials and companies were accused of illegal profiteering.

Step 3: Eliminate wrong options.

- Iraq war crimes, WMDs, and Saddam Hussein were major issues, but the specific 2005 scam was about the misuse of the Oil-for-Food Programme.

Step 4: Final Answer.

Thus, the scandal was linked to:

Food-for-oil programme

Quick Tip

Always link "UN $64 billion Iraq scam (2005)" with the "Oil-for-Food Programme".

Q145. The Reserve Bank of India Governor is

A) Bimal Jain

B) Y. V. Reddy

C) Deepal Parekh

D) Naresh Chandra

Correct Answer: (B) Y. V. Reddy

Solution:

Step 1: Role of RBI Governor.

The Governor of the Reserve Bank of India (RBI) is the head of India's central bank and is responsible for monetary policy, regulation of banks, and maintaining financial stability.

Step 2: Identify the correct Governor during the given time.

- Yaga Venugopal Reddy (Y. V. Reddy) served as the **21st Governor of RBI from September 6, 2003 to September 5, 2008**.
- During his tenure, he took important measures on inflation control, currency stabilization, and introduced financial reforms.

Step 3: Eliminate wrong options.

- Bimal Jain – not an RBI Governor.
- Deepal Parekh – associated with HDFC, not RBI.
- Naresh Chandra – bureaucrat, but not RBI Governor.

Y. V. Reddy

Quick Tip

Always connect RBI Governors with their timeline. For mid-2000s (2003–2008), remember Y. V. Reddy.

Q146. Which one is listed in the first place among the largest global corporations in 2005 by the Fortune magazine?

A) Exxon Mobile

B) Toyota Motors

C) General Motors

D) Walmart

Correct Answer: (C) General Motors

Solution:

Step 1: About Fortune Global 500 ranking.

Fortune magazine annually lists the world's largest corporations by revenue. The ranking is highly prestigious and indicates the scale of a company's global operations.

Step 2: Data for 2005.

In the 2005 Fortune Global 500 list, **General Motors (GM)** was ranked number one in terms of revenue. At that time, GM had extensive worldwide automobile sales, before its financial troubles later in 2008–09.

Step 3: Elimination.

- Exxon Mobile $\rightarrow$ very high revenue but was not number one in 2005.
- Toyota Motors $\rightarrow$ significant player but not the leader at that time.
- Walmart $\rightarrow$ became number one later, but in 2005 GM held the first position.

General Motors

Quick Tip

For early 2000s Fortune rankings, remember General Motors held the top spot before Walmart and Exxon overtook in later years.

Q147. Recently VAT was introduced in India. Choose the correct statement.

A) VAT has replaced Sales Tax in all states of India

B) VAT is charged in place of Sales Tax only in some states of India

C) VAT is charged in addition to Sales Tax in all states of India

D) VAT is charged in addition to Sales Tax in some states of India

Correct Answer: (B) VAT is charged in place of Sales Tax only in some states of India

Solution:

Step 1: What is VAT?

Value Added Tax (VAT) is a type of indirect tax levied on goods at each stage of production or distribution, based on the value added.

Step 2: Introduction in India.

VAT was introduced in India in **April 2005**. Initially, not all states accepted it—some states resisted due to revenue concerns. Thus, VAT replaced the old **Sales Tax system** only in certain states first.

Step 3: Elimination of wrong options.

- (A) Not in all states at once.
- (C) VAT is a replacement, not an addition, so this is wrong.
- (D) Same reason—VAT is not an extra tax; it substituted Sales Tax.

Step 4: Correct understanding.

Thus, in 2005, the correct statement was:

VAT was charged in place of Sales Tax only in some states of India.

Quick Tip

VAT was a stepping stone toward the eventual implementation of GST in India (2017). Always note that VAT initially coexisted with Sales Tax in some states.
