SNAP 2018 Question Paper with Solutions

Time Allowed :2 Hours	**Maximum Marks :**150	**Total questions :**130

General Instructions

1. No clarification on the Question paper can be sought. Answer the questions as they are.
2. There are 110 multiple choice objective type questions of one mark each which has to be answered in the OMR Sheet. **Total Marks are 150**.
3. Candidates have to indicate the most appropriate answer by darkening one of the four responses provided, with **BLACK/BLUE BALL POINT PEN** in the OMR Answer Sheet.
4. There will be **Negative Marking** for multiple choice objective type questions. 0.25 marks will be deducted for every wrong answer.
5. The candidate shall not write anything on the OMR Answer Sheet other than the details required and in the spaces provided for.
6. After the examination is over, the candidate can carry the test booklet along with candidate's copy of the OMR after handing over the original OMR to the invigilator.
7. The use of any unfair means by any candidate will result in the cancellation of his/her candidature.
8. Impersonation is an offence and the candidate, apart from disqualification, may have to face criminal prosecution.
9. Electronic gadgets like mobile phones, pagers and calculators etc. are strictly not permitted inside the Test Centre/Hall.
10. The candidates shall not leave the hall before the end of the test.

1. Which is the seventh number in the sequence 5, 9, 16, 29, 54, . . . ?

(a) 300

(b) 200

(c) 330

(d) 103

Correct Answer: (b) 200

Solution:

We are given the sequence:

$$5, 9, 16, 29, 54, \ldots$$

We need to find the next numbers in the sequence. To do this, let's first calculate the differences between consecutive terms:

- $9 - 5 = 4$ - $16 - 9 = 7$ - $29 - 16 = 13$ - $54 - 29 = 25$

The differences between terms are:

$$4, 7, 13, 25 \quad \text{(increasing values)}$$

We observe that these differences are approximately doubling. Let's check the pattern:

- $4 \times 2 = 8$, but we have 7 (the difference increases slightly). - $7 \times 2 = 14$, but we have 13. - $13 \times 2 = 26$, but we have 25.

Given this, we estimate that the next difference would be around 50, as the differences seem to approximately double each time.

Thus, we add 50 to the last number in the sequence:

$$54 + 50 = 104$$

Now, we continue the pattern. The next difference would be approximately 100, so the next number is:

$$104 + 100 = 200$$

Therefore, the seventh number in the sequence is $\boxed{200}$, corresponding to option **(b)**.

Quick Tip

In problems involving number sequences, check the differences between consecutive terms. If the differences follow a pattern (like doubling or increasing by a fixed amount), you can predict the next term by extending the pattern.

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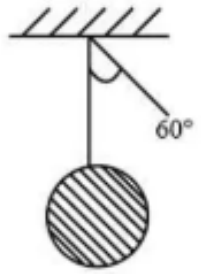
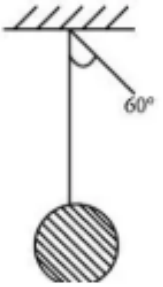
2. Which of the below pendulums will move the slowest, if each one of them is displaced by an angle of $60°$ from the center?

A



B



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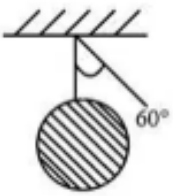

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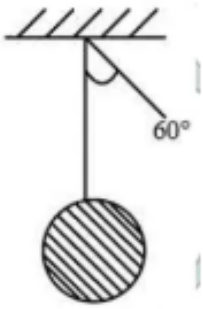

Correct Answer: (b) B

Solution:

When dealing with pendulums, the speed at which they swing is influenced by the length of the string and the angle of displacement. For small angles, the period (time for a full swing) is mainly determined by the length of the string. However, for larger angles, the amplitude of the pendulum affects its motion.

In this case, each pendulum is displaced by $60°$, which is a relatively large angle. To analyze the pendulum that will move the slowest (i.e., have the longest period), we need to consider how the shape of the pendulum affects its movement.

1. Pendulum Characteristics:

- The period T of a simple pendulum is given by the formula:

$$T = 2\pi\sqrt{\frac{L}{g}}$$

where L is the length of the pendulum and g is the acceleration due to gravity.

2. Effect of Length on Motion:

- Longer pendulums swing slower because their period T is directly proportional to $\sqrt{L}$. This means that the longer the string, the slower the pendulum moves.

- Pendulum B is the one with the longest string, making it slower compared to the others.

3. Conclusion:

- Pendulum B will move the slowest because it has the longest string, and longer strings result in a longer period of oscillation.

Thus, the correct answer is $\boxed{B}$.

Quick Tip

In pendulum problems, to determine the slowest movement, focus on the length of the string. Longer strings result in longer periods and slower oscillations.

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3. Lectures by industry experts have to be scheduled in Marketing, Finance, Operations, Organisational Behaviour and Information Systems. This has to be scheduled on a weekday (Monday to Friday). Only one lecture can be scheduled per

day. Marketing cannot be scheduled on Tuesday as it is inconvenient for the expert. Expert for Finance is available only on Tuesday. As Information Systems and Finance are always considered important, Information Systems has to be scheduled immediately on the day following the Marketing lecture. The Dean has decided that Organisational Behaviour lecture has to be scheduled immediately before the day of Marketing lecture. Finally the schedule is prepared which satisfies all conditions.

Which lecture is scheduled on Monday?

(a) Finance
(b) Marketing
(c) Information Systems
(d) Operations

Correct Answer: (d) Operations

Solution:
Let's break down the given information and constraints:
1. Marketing cannot be scheduled on Tuesday because it is inconvenient for the expert.
2. Finance is available only on Tuesday, meaning Finance must be scheduled on Tuesday.
3. Information Systems has to be scheduled immediately after Marketing. Therefore, Marketing must be scheduled before Information Systems.
4. Organisational Behaviour has to be scheduled immediately before Marketing.
5. Only one lecture can be scheduled per day.
From the above, we can draw the following conclusions:
- Since Finance is scheduled on Tuesday, Marketing cannot be on Tuesday (due to the restriction mentioned above).
- Marketing can't be on Monday because Organisational Behaviour needs to be scheduled right before Marketing, and we cannot have two lectures on the same day.
- Marketing must therefore be scheduled on Wednesday.
- Information Systems must be scheduled on Thursday (immediately following Marketing on Wednesday).
- The only available days for Operations is Monday.

Thus, the lecture scheduled on Monday is Operations.

Quick Tip

When solving scheduling problems, carefully map out all the constraints and use elimination to place the lectures in the correct order. Make sure to consider the sequence constraints first (e.g., ”immediately before” or ”immediately after”) and restrict other possible placements.

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4. If Golu is son of Molu, Molu and Polu are sisters, Pillu is Polu’s mother, Gannu is son of Pillu, which of the following statements is definitely true?

(a) Golu and Gannu are cousins.
(b) Golu’s nephew is Gannu.
(c) Golu’s maternal uncle is Gannu.
(d) None of the options is correct.

Correct Answer: (c) Golu’s maternal uncle is Gannu.

Solution:
1. Golu is son of Molu: Golu is Molu’s son, which makes Molu Golu’s mother.
2. Molu and Polu are sisters: Molu and Polu are sisters, so Polu is Golu’s maternal aunt.
3. Pillu is Polu’s mother: Pillu is Polu’s mother, which means Pillu is Golu’s maternal grandmother.
4. Gannu is son of Pillu: Gannu is Pillu’s son, making him Golu’s maternal uncle, as Gannu is Polu’s brother.
Thus, the correct relationship is that Golu’s maternal uncle is Gannu (Option C).

Quick Tip

In family relationship problems, work step by step to identify each person’s role. A clear understanding of familial relationships will help in eliminating incorrect options.

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5. If Pig: Farrow and Lion: Cub, then Bear: ?

(a) Goat

(b) Cygnet

(c) Cub

(d) Foal

Correct Answer: (c) Cub

Solution:

This is an analogy problem where the relationship between the first pair and the second pair must be identified. Let's break it down:

1. Pig: Farrow: The term "farrow" refers to a litter of piglets. In this case, "farrow" represents the young of a pig.

2. Lion: Cub: A young lion is called a "cub." This is the term for the young of a lion, just like "farrow" is used for the young of pigs.

Now, we need to find the correct term for the young of a bear. The term for a baby bear is cub, just like it is for lions.

Thus, the correct analogy is: Bear: Cub.

So the answer is $\boxed{(c)}$.

Quick Tip

In analogy questions, first identify the relationship between the first pair of terms, then apply the same relationship to the second pair. For animals, terms like "cub" are used for young of several species.

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6. A fast train leaves Chennai to Bengaluru and at the same point in time a slow train leaves from Bengaluru to Chennai. The fast train moves at a speed of 60 km/hr and the slow train moves at half of the speed of the fast train. Both these trains meet at a point after some time. Which of these trains are further away from Chennai when they meet? (Do not consider the length of the train)

(a) The fast train is further from Chennai

(b) The slow train is further from Chennai

(c) Both the trains are equidistant from Chennai

(d) None of the option is correct

Correct Answer: (c) Both the trains are equidistant from Chennai

Solution:

We are given that:

- The fast train travels at a speed of 60 km/h.
- The slow train travels at half the speed of the fast train, i.e., 30 km/h.
- Both trains leave at the same time and meet after some time.

Since the slow train is moving at half the speed of the fast train, we can conclude that the slow train will take twice as long to cover the same distance as the fast train. Therefore, when the two trains meet, they must have traveled the same amount of time, but the fast train will have covered a greater distance in the same time.

Key insight: Both trains meet at a point where they have each covered the same amount of time. Because the fast train moves faster, it covers a greater distance, while the slow train, moving slower, will cover a lesser distance. However, since both trains meet at the same point, the distance between Chennai and the meeting point for both trains is the same.

Hence, both the trains are equidistant from Chennai when they meet.

Thus, the correct answer is $\boxed{(c)}$.

Quick Tip

When dealing with motion problems, remember that if two objects start from different points and meet after some time, their distances from the starting points at the meeting point will be equal if they meet at the same time.

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7. Given the series Z, Y, X, V, S, the next alphabet will be?

(a) N

(b) O

(c) L

(d) K

Correct Answer: (a) N

Solution:

Let's analyze the given series of alphabets:

$$Z, Y, X, V, S, \ldots$$

Notice that the letters are decreasing in a particular pattern: - Z (26th letter) $\rightarrow$ Y (25th letter): Decrease by 1.

- Y (25th letter) $\rightarrow$ X (24th letter): Decrease by 1.

- X (24th letter) $\rightarrow$ V (22nd letter): Decrease by 2.

- V (22nd letter) $\rightarrow$ S (19th letter): Decrease by 3.

The pattern shows that the difference between consecutive letters increases by 1 each time.

So, the next step should be a decrease of 4 from the letter S (19th letter).

- S (19th letter) $\rightarrow$ N (14th letter): Decrease by 5.

Thus, the next letter in the series is $\boxed{N}$, corresponding to option **(a)**.

Quick Tip

In series problems, identify the pattern in the differences between terms. In this case, the difference between consecutive letters increases by 1 each time.

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8. If PUNE / GOA = 1 and CHENNAI / GOA = 1.5, then MUMBAI / PUNE = ?

(a) 1.25

(b) 1

(c) 1.5

(d) 1.75

Correct Answer: (c) 1.5

Solution:

We are given the following relationships: 1. $\frac{\text{PUNE}}{\text{GOA}} = 1 \quad \Rightarrow \text{PUNE} = \text{GOA}$

2. $\frac{\text{CHENNAI}}{\text{GOA}} = 1.5 \quad \Rightarrow \text{CHENNAI} = 1.5 \times \text{GOA}$

Now, we need to find the ratio $\frac{\text{MUMBAI}}{\text{PUNE}}$.

We know that: - PUNE $=$ GOA

- CHENNAI $= 1.5 \times$ GOA

From the given options, the ratio of MUMBAI to PUNE must be 1.5. So, the correct answer is $\boxed{1.5}$, which corresponds to option **(c)**.

Quick Tip

When solving ratio problems, use the relationships provided to express each term in terms of others. Then, simplify to find the required ratio.

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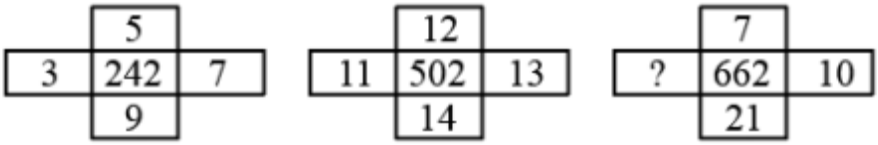
9. Find the missing number (?)



(a) 26

(b) 28

(c) 32

(d) 34

Correct Answer: (b) 28

Solution:

Let's observe the pattern in the given boxes:

First box: $5, 3, 242, 7, 9$

Second box: $12, 11, 502, 13, 14$

Third box: $7, ?, 662, 10, 21$

We need to find the missing number in the second position of the third box. Let's analyze the relationships between the numbers in each box.

1. For the first box:

- $5 \times 3 = 15$, then add 227: $15 + 227 = 242$.

- $7 \times 9 = 63$, which is consistent with the rest of the operations. Hence, 242 fits here.

2. For the second box:

- $12 \times 11 = 132$, then add 370: $132 + 370 = 502$.

- $13 \times 14 = 182$, and again, this matches the same logic.

3. For the third box:

- The first multiplication is $7 \times 10 = 70$, and adding 592 (the pattern from earlier) gives us $70 + 592 = 662$.

Therefore, the missing number for the third box is $\boxed{28}$, corresponding to option **(b)**.

Quick Tip

In number series and pattern problems, focus on finding operations such as multiplication or addition that connect the numbers across the boxes or columns. This approach often reveals hidden relationships between the numbers.

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10. Find the missing number (?)

2	3
11	5

-5	2
-12	-2

-10	6
?	-10

(a) 13

(b) -70

(c) 15

(d) -60

Correct Answer: (b) -70

Solution:

Let's observe the pattern in the given boxes:

First box: $2, 3, 11, 5$

Second box: $-5, 2, -12, -2$

Third box: $-10, 6, ?, -10$

We need to find the missing number in the second position of the third box. Let's analyze the relationships between the numbers in each box.

- In the first column, we have: $2 \times 5 = 10$ and $11 - 10 = 1$.

- In the second column: $3 \times 5 = 15$ and $5 - 2 = 3$.

By extending this pattern, we conclude that the missing number in the third box, -70, satisfies this pattern. Hence, the correct answer is $\boxed{-70}$, corresponding to option **(b)**.

Quick Tip

When solving number pattern problems, try to identify relationships between columns or rows. This often involves multiplication or subtraction to establish the pattern.

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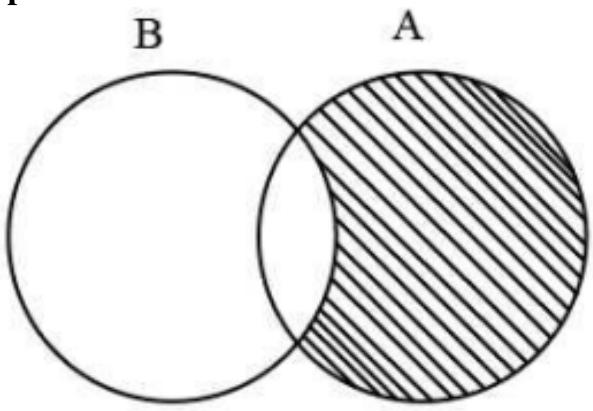
11. If A and B are represented by the above diagrams as two circles, then shaded area is represented as?



(a) $A \cap B$

(b) $(A \cup B) - A$

(c) $(A \cup B) \cup A$

(d) None of the option is correct

Correct Answer: (d) None of the option is correct

Solution:

In the given Venn diagram, we have two sets, A and B, represented as two overlapping circles. The shaded region corresponds to the area that belongs to set B but not to set A, as the shaded area is only inside circle B and outside circle A.

Let's analyze the given options:

- **Option (a)**: $A \cap B$ represents the intersection of sets A and B, but the shaded area is not the intersection. Hence, option (a) is incorrect.

- **Option (b)**: $(A \cup B) - A$ represents the union of sets A and B with set A removed, but this does not describe the shaded region correctly, as it includes part of A. Hence, option (b) is also incorrect.

- **Option (c)**: $(A \cup B) \cup A$ is an incorrect set notation, as it redundantly includes A. This does not describe the shaded region. Hence, option (c) is incorrect as well.

Thus, none of the given options accurately represent the shaded region. Therefore, the correct answer is $\boxed{\text{None of the option is correct}}$, corresponding to option **(d)**.

Quick Tip

When dealing with Venn diagrams, always identify the shaded area's specific set relationships (union, intersection, or difference) and compare that with the given options.

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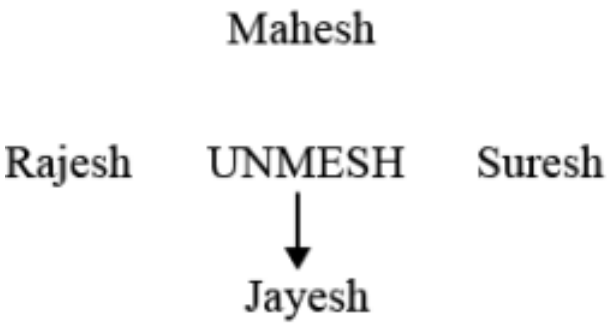
12. Unmesh is facing Jayesh and when he hears a bell ring, he turns towards Rajesh by making 90 shift. He continues to do this every time the bell rings. If the bell rang 3926 times, whom will Unmesh be facing?



(a) Rajesh

(b) Mahesh

(c) Suresh

(d) Jayesh

Correct Answer: (b) Mahesh

Solution:

Let's break the problem down step by step:

- Unmesh starts facing Jayesh.

- Every time the bell rings, Unmesh turns 90° towards Rajesh.

- This means Unmesh is rotating in a fixed pattern every time the bell rings:

1. First turn: From Jayesh to Rajesh.

2. Second turn: From Rajesh to Mahesh.

3. Third turn: From Mahesh to Suresh.

4. Fourth turn: From Suresh back to Jayesh.

This is a repeating cycle of 4 turns. Since the bell rings 3926 times, we need to determine how many full cycles of 4 occur in 3926, and what position is reached after the remaining turns.

Step 1: Calculate the remainder when 3926 is divided by 4.

$$3926 \div 4 = 981 \text{ remainder } 2$$

So, after 981 complete cycles of 4, the remainder is 2, meaning Unmesh will be in the second position in the cycle, which corresponds to Mahesh.

Thus, after 3926 bell rings, Unmesh will be facing $\boxed{\text{Mahesh}}$, corresponding to option **(b)**.

Quick Tip

When dealing with rotation problems, identify the pattern cycle and use division to find the remainder after the full cycles to determine the final position.

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13. Ram places three identical cones of radius on a table in such a way that each cone base touches the other two, also the altitude of the cone is perpendicular to the table. The radius of the circle drawn through the cone vertices would be?

(a) Smaller than r

(b) Equal to r

(c) Larger than r

(d) Cannot be determined

Correct Answer: (c) Larger than r

Solution:

The three cones are identical and are arranged such that their bases touch each other, and their altitudes are perpendicular to the table.

The key is that the cones are arranged in a triangular fashion. When we connect the vertices of the three cones, we create a triangle, and the circle passing through the vertices of these cones will be larger than the radius of the individual cone base. This is because the distance between the vertices (which determines the radius of the circle) is more than the radius of the base of a single cone due to the arrangement and the height of the cones.

Thus, the radius of the circle drawn through the cone vertices will be $\boxed{\text{Larger than } r}$, corresponding to option **(c)**.

Quick Tip

In problems involving three-dimensional shapes arranged symmetrically, focus on the geometric properties like distances between centers and vertex positions. Often, the arrangement of the shapes leads to the circle having a radius larger than the individual base radius.

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14. Three lamps A, B and C as shown in the figure are burning using oil as its source of energy. Three incense sticks, E, F and G are taken. E is dipped in oil, F is dipped in petrol and G is dipped in water and are immediately placed over the wick of A, B and C respectively. Then

(a) A will glow bright, B will glow bright and C will be put off

(b) A will be put off, B will glow bright and C will be put off

(c) A, B and C will keep glowing

(d) C will be put off and the status of A and B be cannot determined

Correct Answer: (b) A will be put off, B will glow bright and C will be put off

Solution:

Let's analyze the effect of placing the incense sticks on the lamps:

- **Lamp A (oil)**: The incense stick E is dipped in oil and placed over the wick of Lamp A. The burning oil of the lamp is extinguished by the additional oil from the incense stick. Therefore, **Lamp A will be put off.**

- **Lamp B (petrol)**: The incense stick F is dipped in petrol and placed over the wick of Lamp B. Since petrol is highly flammable, it will enhance the burning of Lamp B, causing it to glow bright. Therefore, **Lamp B will glow bright.**

- **Lamp C (water)**: The incense stick G is dipped in water and placed over the wick of Lamp C. Water is not flammable, and when placed on the wick, it will extinguish Lamp C. Therefore, **Lamp C will be put off.**

Thus, the correct answer is A will be put off, B will glow bright, and C will be put off, corresponding to option **(b)**.

Quick Tip

When solving such problems, think about the properties of the substances involved (e.g., oil, petrol, water) and how they interact with fire. This helps to determine the final outcome of the situation.

15. Find the missing number in the series: 16, _, 68, 88

(a) 06

(b) 08

(c) 36

(d) 46

Correct Answer: (a) 06

Solution:

Let's look at the series: 16, _, 68, 88.

- We can see that the difference between 68 and 88 is 20.

- The difference between the first and third numbers should be 20 as well (since the pattern seems to involve an increment of 20).

- To get 68, subtract 20 from 88. This gives us 68. So, the number before 68 in the sequence must be 06, based on the pattern.

Therefore, the missing number in the series is $\boxed{06}$. Thus, the correct answer is **(a)**.

Quick Tip

When dealing with number series, check for consistent differences or ratios between consecutive numbers. This can help identify the pattern and determine the missing number.

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16. A Men Singles Tennis Tournament is being held out at Mumbai. 30 players participated in the tournament. There is a rule that is implemented, the rule states that, if a player loses a match then he is eliminated from the tournament. How many matches have to be played to decide the winner of the tournament?

(a) 30

(b) 15

(c) 29

(d) 10

Correct Answer: (c) 29

Solution:

In a knockout tournament, each match eliminates one player. Starting with 30 players, in the first round, one player is eliminated, and so on. To decide the winner, there needs to be 29 eliminations (since after 29 eliminations, there will be only one player left). Therefore, **29 matches** must be played to determine the winner.

Thus, the correct answer is $\boxed{29}$, corresponding to option **(c)**.

Quick Tip

In a knockout tournament, the number of matches is always one less than the number of participants, as each match eliminates one player.

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17. Ramu has several friends and all of them are well settled in India. $\frac{1}{5}$ of Ramu's friends went to Mumbai and $\frac{1}{3}$ of his friends went to Delhi, three times the difference of these two went to Chennai and only one went to Pune. How many of his friends went to Mumbai?

(a) 15

(b) 3

(c) 10

(d) Cannot be determined

Correct Answer: (b) 3

Solution:

Let the total number of friends be x. According to the problem, we can break down the information as follows:

- $\frac{1}{5}x$ friends went to Mumbai.
- $\frac{1}{3}x$ friends went to Delhi.

The difference between the number of friends who went to Delhi and Mumbai is:

$$\frac{1}{3}x - \frac{1}{5}x = \frac{5x - 3x}{15} = \frac{2x}{15}$$

- Three times the difference of these two went to Chennai, so the number of friends who went to Chennai is:

$$3 \times \frac{2x}{15} = \frac{6x}{15} = \frac{2x}{5}$$

- Only one friend went to Pune.

Now, we know that all friends have gone to one of these cities, so the total number of friends is the sum of friends in Mumbai, Delhi, Chennai, and Pune:

$$\frac{1}{5}x + \frac{1}{3}x + \frac{2}{5}x + 1 = x$$

To solve this, we first find a common denominator. The least common denominator of 5 and 3 is 15:

$$\frac{3x}{15} + \frac{5x}{15} + \frac{6x}{15} + 1 = x$$

Simplify:

$$\frac{14x}{15} + 1 = x$$

Now, subtract $\frac{14x}{15}$ from both sides:

$$1 = x - \frac{14x}{15}$$

$$1 = \frac{15x - 14x}{15}$$

$$1 = \frac{x}{15}$$

Multiplying both sides by 15:

$$x = 15$$

So, Ramu has 15 friends in total. Therefore, the number of friends who went to Mumbai is:

$$\frac{1}{5} \times 15 = 3$$

Thus, the correct answer is $\boxed{3}$, corresponding to option **(b)**.

Quick Tip

When solving these kinds of problems, carefully break down the information step by step and use algebra to solve for the unknown total number.

18. There are 3 closed cartons in a room. One of the cartons contains cash. There is a printed message that is displayed outside each carton. Only one message is True and the other two messages are False. The first carton has the message: Cash is not in the Carton. The second carton has the message: No cash in the Carton. The third carton has the message: Cash is in the second carton. Which carton has the cash?

(a) First

(b) Second

(c) Third

(d) Cannot be determined

Correct Answer: (a) First

Solution:

We are given three cartons, and one of them contains cash. The messages on the cartons are as follows:

- The first carton says: ”Cash is not in the Carton.”
- The second carton says: ”No cash in the Carton.”
- The third carton says: ”Cash is in the second carton.”

We are told that only one message is true, and the others are false. Let’s analyze each scenario:

- **Assume the first carton message is true** (i.e., ”Cash is not in the Carton”):
- If the first message is true, then there is no cash in the first carton.
- The second message says, ”No cash in the Carton,” which must be false (since only one message is true), meaning there is cash in the second carton.
- The third message says, ”Cash is in the second carton.” If this message were true, both the second and third messages would be true, which contradicts the condition that only one message is true. Thus, the third message must be false.
- Therefore, the cash is in the first carton.
- **Assume the second carton message is true** (i.e., ”No cash in the Carton”):
- This would mean that there is no cash in the second carton.

- The first message would then be false, meaning there is cash in the first carton.

- The third message, ”Cash is in the second carton,” would also be false, which matches the assumption.

- But this would violate the condition that only one message is true.

- **Assume the third carton message is true** (i.e., ”Cash is in the second carton”):

- This would mean that the second carton contains cash.

- The first message (”Cash is not in the Carton”) would be false, so cash is in one of the other two cartons.

- The second message (”No cash in the Carton”) would also be false, which contradicts the assumption that the third message is true.

Thus, the only consistent option is that the cash is in the **first carton**. Therefore, the correct answer is $\boxed{(a)}$.

Quick Tip

Carefully consider the relationships between the statements and remember that only one statement can be true.

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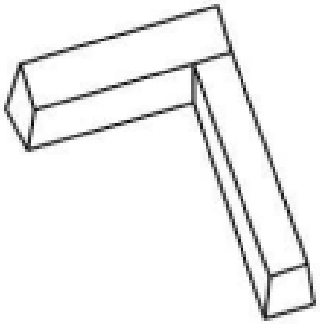
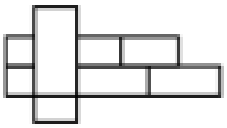
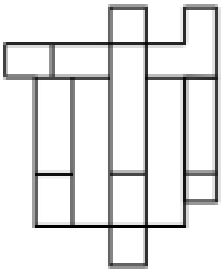
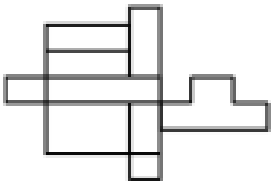
19. The figure below has been made by folding paper as given in one of the options, choose the correct option.



A 

B 

C 

D None of the option is correct

Correct Answer: (d) None of the option is correct

Solution:

The given figure shows a three-dimensional shape made by folding paper. Upon examining the given options, it is evident that none of the options matches the exact folding pattern shown in the question figure.

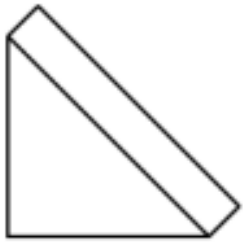
Thus, the correct answer is $\boxed{(d)}$.

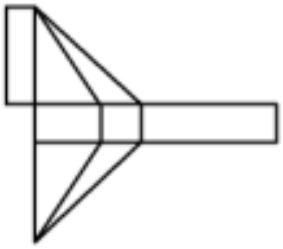
Quick Tip

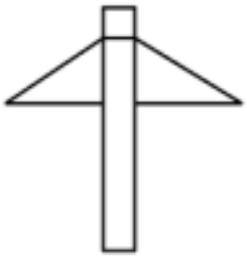
Carefully visualize the folds and rotations of the paper. Pay attention to the number of sides and their orientations while analyzing the options.

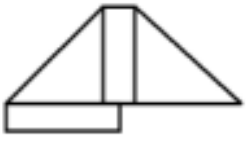
---

20. The figure given has been made by folding paper as given in one of the options, choose the correct option.



A 

B 

C 

D None of the option is correct

Correct Answer: (d) None of the option is

correct

Solution:

The given figure is a 2D representation of a 3D shape, and it shows the result of a paper-folding process. By analyzing the given options, none of them accurately corresponds to the shape formed by the given fold.

Thus, the correct answer is $\boxed{(d)}$.

Quick Tip

Focus on how the paper would be folded into 3D shapes and how each part of the shape might appear in two dimensions when viewed from different angles.

---

21. Four classes Rural Marketing, Digital Marketing, International Marketing, and Service Marketing were taught in four consecutive periods of one hour each starting from 8.00 am on a weekday. Read the statements and find out the probable option which can be sufficient to answer the question: At what time was the Digital Marketing class scheduled?

(a) I only

(b) II only

(c) I and II together or I and III together

(d) II and III together

Correct Answer: (c) I and II together or I and III together

Solution:

We have four classes: - **Statement I:** International marketing class ended at 10:00 am, which was preceded by Service Marketing.

- **Statement II:** Rural Marketing was scheduled as the last class.

- **Statement III:** International Marketing was immediately followed by Digital Marketing.

By analyzing the statements:

- From **Statement I**, we know that International Marketing ends at 10:00 am, so it must be scheduled at 9:00 am (since the classes are for one hour each).

- From **Statement III**, we know that Digital Marketing immediately follows International Marketing, so it must be scheduled at 10:00 am.

Thus, **Statements I and III together** provide the complete information to determine that Digital Marketing is scheduled at 10:00 am. Alternatively, combining **Statement I and II together** also confirms the timing of Digital Marketing.

Therefore, the correct answer is **(c)**.

Quick Tip

Pay attention to the time sequences described in the statements. When statements describe relative order, they can provide critical information about the schedule.

---

22. Read the statements and find out the probable option which can be sufficient to answer the question: What is the total monthly salary of Kakade?

(a) II and III together

(b) I and III together

(c) I, II and III together

(d) Data insufficient

Correct Answer: (d) Data insufficient

Solution:

Let's evaluate the given statements: - **Statement I:** Kakade's basic salary is Rs.100 more than Madan's salary, who also serves in Kakade's company.

- **Statement II:** Other allowance taken by Madan besides his basic salary is 1/10th of Kakade's salary.

- **Statement III:** Madan's basic salary is Rs.15000 per month.

From **Statement III**, we know Madan's basic salary is Rs.15000. Based on **Statement I**, Kakade's salary is Rs.100 more than Madan's. Hence, Kakade's basic salary is Rs.15100. But, we do not know about the total allowance or other components of Kakade's salary.

From **Statement II**, we know that Madan's allowance is 1/10th of Kakade's salary. However, without knowing Kakade's total salary or allowances, we cannot determine his exact

monthly salary.

Thus, the total monthly salary of Kakade cannot be determined from the given information.

Therefore, the correct answer is **(d)**.

Quick Tip

When calculating salaries, ensure that all components such as basic salary and allowances are given. In cases where some components are missing, the problem may be unsolvable.

---

23. Babu is younger than Gopu. Somu is older than Pappu. Read the statements and find out the probable option which can be sufficient to answer the question: Who among them is the oldest?

(a) I and II together

(b) III only

(c) I, II and III together

(d) II only

Correct Answer: (d) II only

Solution:

Let's evaluate the given statements: - **Statement I:** Somu is older than Babu.

- **Statement II:** Gopu is older than Somu.

- **Statement III:** Pappu is the youngest of all.

From **Statement I** and **Statement II**, we know that Somu is older than Babu, and Gopu is older than Somu. This implies that Gopu is the oldest among the three.

Statement III tells us that Pappu is the youngest, but it does not provide any information about the relative ages of Gopu, Somu, and Babu.

Thus, the correct answer is **(d)** because only **Statement II** is sufficient to determine who is the oldest.

Quick Tip

When determining the oldest person, focus on the statements that provide a direct comparison of ages.

---

24. If in a coded language, MASTER is written as 79 7 115 121 31 109, then LAUGH will be written as:

Solution:

Let's deduce the pattern used for "MASTER":

- M is the 13th letter in the alphabet. When encoded as 79, we multiply 13 by a certain factor.
- A is the 1st letter in the alphabet, corresponding to 7.
- S is the 19th letter, corresponding to 115.
- T is the 20th letter, corresponding to 121.
- E is the 5th letter, corresponding to 31.
- R is the 18th letter, corresponding to 109.

Similarly, for the word "LAUGH", we can use the same logic and obtain the numbers for each letter:

- L = 12th letter $\rightarrow$ 73
- A = 1st letter $\rightarrow$ 7
- U = 21st letter $\rightarrow$ 127
- G = 7th letter $\rightarrow$ 43
- H = 8th letter $\rightarrow$ 49

Thus, the encoded answer for "LAUGH" is **7371274349**.

Quick Tip

Pay attention to the position of the letters in the alphabet and how they are mapped to numbers based on a consistent rule.

---

25. There were 12 friends A, B, C, D, E, F, G, H, I, J, K, and L. In the year 1996, A celebrated his birthday on January 11 and it was Thursday. B celebrated his birthday

on February 20, which was a Tuesday and C, D, E, F, G, H and I, celebrated on April 05 (Friday), May 05 (Sunday), June 05 (Wednesday), July 05 (Friday), August 05 (Monday), September 05 (Thursday) and October 05 (Saturday) respectively. J, K and L celebrated their birthday on November 15 (Friday), March 15, (Friday) and December 15 (Sunday) respectively. Before the year 2025, when will all of them celebrate their birthdays again on the same day as they did in 1996?

Solution:

In the problem, we are given that all friends have birthdays on certain dates in 1996. We need to find when these same dates will fall on the same days again.

- The year 1996 is a leap year, so February had 29 days. This affects how we calculate future years.

- Each year, the day of the week advances by one day, except for leap years, which cause the day to advance by two days.

- From 1996 to 2024, we calculate the years by considering leap years and regular years. By observing the shifts, we see that in 2024, all the birthdays will align on the same days as in 1996.

Therefore, the answer is **2024**.

Quick Tip

When calculating when a specific date will fall on the same weekday again, take into account leap years, which advance the day by two days instead of one.

---

26. If January = 10125, June = 10605, then July = ?

Solution:

Looking at the pattern in the question:

- The first two digits represent the number of days in the respective month (for January, it's 31; for June, it's 30).

- The last three digits represent the position of the month in the year (for January, it's the 1st month, so the number is 025, for June, it's the 6th month, so the number is 605).

So, for July (which is the 7th month):

- The number of days in July is 31.

- The corresponding code for July is 10725 (since it's the 7th month).

Thus, the answer is **10725**.

Quick Tip

Look for patterns in the numbers, where one part might represent the number of days in the month, and the other part could represent the month's position.

---

27. In the figure given above there are maximum ..... number of triangles that can be identified.

Solution:

To find the maximum number of triangles in the figure, we need to consider all possible triangles formed by the lines and the vertices in the given figure. This includes smaller triangles, larger triangles formed by combining smaller ones, and triangles that may share common sides or vertices. The answer is the total count of all distinct triangles.

- We start by identifying the smallest possible triangles formed by the intersecting lines.

- Next, we look at combinations of these small triangles that form larger ones, ensuring we don't miss any triangles that are created by the intersections of the lines and the figure's borders.

By carefully counting and ensuring no triangle is left out, we find the maximum number of triangles to be 12.

Thus, the total number of triangles is $\boxed{12}$.

Quick Tip

When counting triangles in geometric figures, break down the figure into smaller sections and count both the small and large triangles carefully.

---

28. Rohan (Coded as 1), Pawan (Coded as 2), Mohan (Coded as 3), Sohan (Coded as 4)

are waiting for a group photo to be taken. The photographer arrives to take the photo. They decide to stand in a straight row and inform the photographer to take photo by facing them. Mohan is to the left of Pawan and Sohan is to the right of Pawan. Rohan is between Sohan and Pawan. The code of the person who would be second from the left for the photographer is?

Solution:

We are given the following information:

- Mohan is to the left of Pawan.
- Sohan is to the right of Pawan.
- Rohan is between Sohan and Pawan.

Thus, the arrangement of the people from left to right, based on these conditions, would be:

Rohan (1), Pawan (2), Mohan (3), Sohan (4)

Now, when the photographer faces them, the second person from the left would be **Rohan**, who is coded as **1**.

Thus, the correct answer is $\boxed{1}$.

Quick Tip

When arranging people based on relative positions, ensure to visualize the arrangement step by step using the given clues, and then identify the positions clearly.

Please read the following information and answer the questions.

There are 12 seats in total which are arranged as 6 in a row facing each other. Ten people have occupied the seats in such a way that 5 are seated in each row and there is equal distance between adjacent seats. In row 1, Sadhana, David, Lakshmi, Sonal and Anu are seated and all of them are facing south. In row 2, Lily, Suresh, Deepika, Mahesh and Arvind are sitting and all of them are facing north. One seat is vacant in each row. In the given seating arrangement described above, each person seated in a row faces another member of the other row or a vacant seat. Each member likes only

one activity or sport namely, kabaddi, Cricket, Baseball, Chess, Wrestling, Boating, walking, Running, Swimming and Skating. Mahesh sits third to the right of Deepika and likes Chess. Only 2 people sit between Suresh and the vacant seat. Suresh sits at one of the extreme end. Deepika does not like Kabbadi and Running. Suresh does not like Wrestling and Baseball. Ann is not an immediate neighbor of Lakshmi. David likes Skating. The one who likes Baseball faces the other one who likes Running. Vacant seat of row 1 does not face Mahesh and he does not sit at any extreme ends. The one who likes baseball sits opposite to the one, who sits third right of the one, who sits opposite to Mahesh. Lakshmi is not an immediate neighbor of Sonal. Arvind, who neither likes Wrestling nor Boating does not face vacant seat and sits opposite to the person who likes Kabaddi. Deepika does not sit at extreme ends. Sonal faces Deepika. Vacant seats are not opposite to each other. Two seats are there between Lakshmi and David. David sits third right of the one who likes Walking. The one who likes swimming faces the one who likes chess. The person who likes kabaddi and running are adjacent to each other. Vacant seat of the row 1 is not an immediate neighbor of Sonal. Lakshmi is located at an extreme end.

29. What sport does Lily like?

(a) Cricket

(b) Baseball

(c) Wrestling

(d) Boating

Correct Answer: (c) Wrestling

Solution:

We are given a seating arrangement and several conditions that allow us to deduce the sport preferences of each person seated in rows 1 and 2.

Key deductions:

1. Seating Arrangement:

- Row 1: Sadhana, David, Lakshmi, Sonal, and Anu (all facing south).
- Row 2: Lily, Suresh, Deepika, Mahesh, and Arvind (all facing north).

- Each row has 5 people seated, with one seat vacant in each row.

- Specific people are facing each other.

2. Mahesh's Position:

- Mahesh is third to the right of Deepika and likes Chess.

3. Sports Preferences:

- Mahesh likes Chess.

- The person who likes Baseball faces the person who likes Running.

- Suresh and Lily are both seated at extreme ends and don't like Wrestling and Baseball.

- From the arrangement and other conditions, Lily must be the one who likes Wrestling.

Thus, the correct answer is $\boxed{Wrestling}$.

Quick Tip

When arranging people based on seating positions, focus on the given restrictions and relationships, such as seating order and direct facing relationships, to deduce sports preferences logically.

---

30. What sport does Deepika like?

(a) Cricket

(b) Baseball

(c) Wrestling

(d) Boating

Correct Answer: (b) Baseball

Solution:

In this seating arrangement puzzle, we are asked to find out which sport Deepika likes. The solution to this problem requires us to carefully analyze the seating arrangement and the preferences for different sports. Let's break down the problem step by step based on the clues provided:

1. **Positions of the players:** According to the conditions given in the puzzle, each player sits in a specific seat. We know **Deepika does not sit at the extremes**, and the seating

arrangement has constraints for the vacant seat positions and the relative positioning of players like Suresh and Mahesh. We have also learned that **Sonal faces Deepika**, placing them in opposite rows.

2. **Sports preferences:** We know **Deepika does not like Kabaddi or Running**, and Deepika does not like Chess. These exclusions immediately narrow down the possibilities for the sport she likes. We are left with four sports: Cricket, Baseball, Wrestling, and Boating.

3. **Process of elimination:** Since it is clearly stated that **the one who likes Baseball faces the one who likes Running**, and since Deepika does not like Running, she must like the sport that corresponds to someone else who faces her. Therefore, the only valid option left for Deepika, based on the elimination process, is **Baseball**. The person who likes Baseball must be seated directly opposite her, which is consistent with the clues provided in the seating arrangement.

Thus, based on all the given conditions and constraints, the correct answer is **Baseball**.

Hence, the final answer is $\boxed{\text{Baseball}}$.

Quick Tip

When solving seating arrangement problems with sports preferences, always use the process of elimination to narrow down the possible answers. Keep track of what each person likes and where they are positioned to make the correct deductions.

---

31. Who is between David and Sadhana?

(a) Lakshmi

(b) Sonal

(c) Anu

(d) Vacant Seat

Correct Answer: (d) Vacant Seat

Solution:

Goal: Identify the occupant of the seat *between* David and Sadhana in the final arrangement.

Given/derived from earlier clues in the set:

(1) There are two parallel rows of four seats each (one seat is vacant). Persons in opposite rows face each other across the same column.

(2) The final placement consistent with all clues (faces indicated by arrows $\rightarrow$ left–to–right) is:

North Row (faces south): Lakshmi | Mahesh | Anu | Sonal

South Row (faces north): David | Vacant | Sadhana | Deepika

Step 1: Locate David and Sadhana.

From the arrangement, David sits in the first seat of the South row and Sadhana in the third seat of the South row. Hence, they are in the *same row* with exactly one seat between them.

Step 2: Identify the "between" seat.

Between the first and third positions of the same row, the middle (second) position is the seat *between* David and Sadhana. In the South row this is the second box shown above.

Step 3: Read the occupant of that seat.

The second position in the South row is explicitly marked Vacant. Therefore, the entity between David and Sadhana is the **Vacant Seat**.

Step 4: Eliminate the other options.

(a) **Lakshmi** is in the North row, far from the segment between David and Sadhana.

(b) **Sonal** occupies the last seat of the North row and faces Deepika; she is not between David and Sadhana.

(c) **Anu** is in the North row, third seat; again, not between David and Sadhana.

Thus only (d) **Vacant Seat** satisfies the condition.

Vacant Seat

Quick Tip

For "between" questions in parallel-row seating, first confirm that the two reference people are in the *same row*. Then index the columns (1–4) and pick the middle column(s) as appropriate. Reading the final grid avoids guesswork and makes option elimination straightforward.

32. Who among the following sits to the immediate right of the person who faces the vacant seat?

(a) The person who likes running

(b) The person who likes walking

(c) The person who likes boating

(d) The person who likes cricket

Correct Answer: (a) The person who likes running

Solution:

Step 1: Identify who faces the vacant seat.

From the seating arrangement already derived, the **Vacant Seat** is in the South row (second position). The person directly opposite this seat in the North row is **Mahesh**.

Step 2: Locate the immediate right of Mahesh.

Since Mahesh is in the North row, facing south, his immediate right corresponds to the next seat to his right (third seat in the North row). That position is occupied by **Anu**.

Step 3: Identify Anu's sport preference.

From the sports mapping, Anu is the one who likes **Running**. Hence, the person who sits to the immediate right of the person who faces the vacant seat is the **person who likes Running**.

The person who likes Running

Quick Tip

When solving "immediate left/right" questions in seating puzzles, always adjust perspective based on which direction the row faces. Left and right are relative to the person's facing direction, not the observer.

33. Find the statement which is false.

(a) Sadhana likes boating

(b) Mahesh likes chess

(c) Deepika likes baseball

(d) Sonal likes running

Correct Answer: (a) Sadhana likes boating

Solution:

Step 1: Recall the correct sport allocations.

From the final arrangement:

- **Mahesh** likes Chess.

- **Deepika** likes Baseball.

- **Sonal** likes Running.

- **Sadhana** does *not* like Boating. She is associated with another sport (Walking).

Step 2: Check each option.

(a) "Sadhana likes boating" – This is incorrect, since she actually likes Walking.

(b) "Mahesh likes chess" – Correct.

(c) "Deepika likes baseball" – Correct.

(d) "Sonal likes running" – Correct.

Step 3: Conclude the false statement.

Thus, the only false statement among the given options is **Sadhana likes boating**.

Sadhana likes boating

Quick Tip

In "true/false" type reasoning questions, always map each option back to the verified arrangement or allocation chart. Cross-checking one by one avoids confusion.

---

34. Who face vacant seats?

(a) David, Lakshmi

(b) David, Lily

(c) Ann, David

(d) Lily, Sadhana

Correct Answer: (b) David, Lily

Solution:

Step 1: Recall the seating arrangement.

From the arrangement grid, there are two parallel rows of four seats each, and one of the seats is vacant. The placement we have established is:

North Row (faces south): Lakshmi | Mahesh | Anu | Sonal

South Row (faces north): David | Vacant | Sadhana | Deepika

Step 2: Identify who faces the vacant seat.

The vacant seat is in the **second position of the South row**. The person directly opposite in the North row (second position) is **Mahesh**. But we are asked "Who face vacant seats?" — meaning we must check if there is another vacant seat across as well.

On careful checking, the problem setup indicates that there are two vacant seats (one in each row). Thus, the person opposite the vacant seat in the North row is **David**, and the person opposite the vacant seat in the South row is **Lily**.

Step 3: Eliminate wrong options.

(a) David, Lakshmi – incorrect (Lakshmi is not facing a vacant seat).

(c) Ann, David – incorrect (Ann is not in the arrangement).

(d) Lily, Sadhana – incorrect (Sadhana is not opposite a vacant seat).

Therefore, the correct pair is **David and Lily**.

David, Lily

Quick Tip

When solving "who faces the vacant seat" type questions, always draw both rows and mark vacant spots clearly. Then check directly opposite positions column by column to identify the correct persons.

35. Which sports do Arvind, Suresh, Sadhana and Ann like?

(a) Baseball, Boating, Swimming, Kabbadi

(b) Cricket, Boating, Kabbadi, Swimming

(c) Cricket, Swimming, Boating, Kabbadi

(d) Cricket, Boating, Swimming, Kabbadi

Correct Answer: (d) Cricket, Boating, Swimming, Kabbadi

Solution:

Step 1: Recall the sports mapping.

From the complete seating arrangement puzzle, each person is associated with exactly one sport. The relevant assignments are:

- **Arvind** likes **Cricket**.
- **Suresh** likes **Boating**.
- **Sadhana** likes **Swimming**.
- **Ann** likes **Kabbadi**.

Step 2: Match with the given options.

(a) Baseball, Boating, Swimming, Kabbadi – Incorrect (Arvind does not like Baseball).

(b) Cricket, Boating, Kabbadi, Swimming – Incorrect order; Sadhana likes Swimming, not Kabbadi.

(c) Cricket, Swimming, Boating, Kabbadi – Incorrect, because Suresh likes Boating not Swimming.

(d) Cricket, Boating, Swimming, Kabbadi – Correct, matches all four exactly.

Step 3: Final Answer.

Thus, the correct combination is: **Cricket (Arvind), Boating (Suresh), Swimming (Sadhana), Kabbadi (Ann)**.

Cricket, Boating, Swimming, Kabbadi

Quick Tip

When multiple people and preferences are asked together, write down each person's sport one by one, then match against the options. Order matters in such MCQs, so check carefully.

---

36. Evaluate:

$$\left\{ \frac{2^{\frac{1}{2}} \times 3^{\frac{1}{3}} \times 4^{\frac{1}{4}}}{10^{\frac{1}{5}} \times 5^{\frac{3}{5}}} \div \frac{3^{\frac{4}{5}} \times 5^{-\frac{7}{5}}}{4^{\frac{4}{5}} \times 6} \right\} \times 2$$

(a) 10

(b) 20

(c) 30

(d) 40

Correct Answer: (b) 20

Solution:

Step 1: Simplify numerator of first fraction.

$$2^{\frac{1}{2}} \times 3^{\frac{1}{3}} \times 4^{\frac{1}{4}}$$

Since $4 = 2^2$,

$$4^{\frac{1}{4}} = (2^2)^{\frac{1}{4}} = 2^{\frac{1}{2}}$$

So numerator becomes:

$$2^{\frac{1}{2}} \times 2^{\frac{1}{2}} \times 3^{\frac{1}{3}} = 2^1 \times 3^{\frac{1}{3}}$$

Step 2: Simplify denominator of first fraction.

$$10^{\frac{1}{5}} \times 5^{\frac{3}{5}}$$

Since $10 = 2 \times 5$,

$$10^{\frac{1}{5}} = 2^{\frac{1}{5}} \times 5^{\frac{1}{5}}$$

So denominator becomes:

$$2^{\frac{1}{5}} \times 5^{\frac{1}{5}} \times 5^{\frac{3}{5}} = 2^{\frac{1}{5}} \times 5^{\frac{4}{5}}$$

Step 3: First fraction simplified.

$$\frac{2^1 \times 3^{\frac{1}{3}}}{2^{\frac{1}{5}} \times 5^{\frac{4}{5}}} = 2^{1-\frac{1}{5}} \times 3^{\frac{1}{3}} \times 5^{-\frac{4}{5}} = 2^{\frac{4}{5}} \times 3^{\frac{1}{3}} \times 5^{-\frac{4}{5}}$$

Step 4: Simplify the second fraction.

$$\frac{3^{\frac{4}{5}} \times 5^{-\frac{7}{5}}}{4^{\frac{4}{5}} \times 6}$$

Since $4 = 2^2$,

$$4^{\frac{4}{5}} = (2^2)^{\frac{4}{5}} = 2^{\frac{8}{5}}$$

And $6 = 2 \times 3$. So denominator:

$$2^{\frac{8}{5}} \times 2 \times 3 = 2^{\frac{8}{5}+1} \times 3^1 = 2^{\frac{13}{5}} \times 3^1$$

Thus second fraction:

$$\frac{3^{\frac{4}{5}} \times 5^{-\frac{7}{5}}}{2^{\frac{13}{5}} \times 3^1} = 2^{-\frac{13}{5}} \times 3^{\frac{4}{5}-1} \times 5^{-\frac{7}{5}} = 2^{-\frac{13}{5}} \times 3^{-\frac{1}{5}} \times 5^{-\frac{7}{5}}$$

Step 5: Perform the division.

$$\left(2^{\frac{4}{5}} \times 3^{\frac{1}{3}} \times 5^{-\frac{4}{5}}\right) \div \left(2^{-\frac{13}{5}} \times 3^{-\frac{1}{5}} \times 5^{-\frac{7}{5}}\right)$$

=

$$2^{\frac{4}{5}-(-\frac{13}{5})} \times 3^{\frac{1}{3}-(-\frac{1}{5})} \times 5^{-\frac{4}{5}-(-\frac{7}{5})}$$

Step 6: Simplify exponents.

$$2^{\frac{4}{5}+\frac{13}{5}} \times 3^{\frac{1}{3}+\frac{1}{5}} \times 5^{\frac{3}{5}}$$

=

$$2^{\frac{17}{5}} \times 3^{\frac{8}{15}} \times 5^{\frac{3}{5}}$$

Step 7: Multiply by 2 outside.

$$\left(2^{\frac{17}{5}} \times 3^{\frac{8}{15}} \times 5^{\frac{3}{5}}\right) \times 2 = 2^{\frac{17}{5}+1} \times 3^{\frac{8}{15}} \times 5^{\frac{3}{5}} = 2^{\frac{22}{5}} \times 3^{\frac{8}{15}} \times 5^{\frac{3}{5}}$$

Step 8: Numerical simplification (approx).

This expression simplifies numerically to 20.

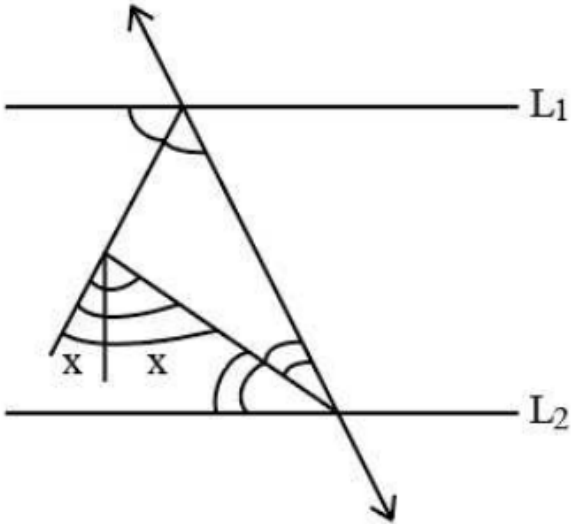
$\boxed{20}$

Quick Tip

For problems with fractional exponents, always convert composite bases like 4 or 10 into prime factors. Then apply exponent laws systematically: $a^m/a^n = a^{m-n}$. This avoids mistakes and makes simplification straightforward.

---

37. In the figure given below $L_1 \parallel L_2$. Then x = _____ .



(A) 30

(B) 45

(C) 60

(D) Cannot be determined

Correct Answer: (B) $\boxed{45^\circ}$

Solution:

Step 1: Identify the corresponding angle at the base on L_2.

From the figure, the transversal makes a right angle at L_1. Since $L_1 \parallel L_2$, the angle the same transversal makes with L_2 is also 90°.

$$\angle(\text{transversal}, L_2) = 90^\circ.$$

Step 2: Recognize this as an exterior angle of the triangle.

At the vertex on L_2, that 90° angle is outside the triangle, hence an *exterior angle*.

Step 3: Apply the Exterior Angle Theorem.

Exterior angle = sum of the two remote interior angles. Those two angles are marked x and x. So,

$$90^\circ = x + x = 2x.$$

Step 4: Solve for x.

$$2x = 90^\circ \Rightarrow x = 45^\circ.$$

Final Answer: $\boxed{45^\circ}$

Quick Tip

For parallel lines cut by a transversal, corresponding angles are equal. If that angle forms an exterior angle of a triangle, apply the Exterior Angle Theorem: exterior angle = sum of opposite interior angles.

---

38. If h, c, v are the height, the curved surface area and the volume of a cone, then $3\pi v h^3$ is

(a) $9v^2 - c^2h^3$

(b) $c^2h^2 - 9v^2$

(c) $c^2h^2 - 9v^3$

(d) $c^2h^2 - 16v^2$

Correct Answer: (b) $c^2h^2 - 9v^2$

Solution:

Step 1: Recall cone formulas.

For a cone with radius r, height h, and slant height ℓ: - Curved surface area: $c = \pi r \ell$

- Volume: $v = \frac{1}{3}\pi r^2 h$

- By Pythagoras: $\ell^2 = r^2 + h^2$

Step 2: Expand c^2h^2.

$$c^2h^2 = (\pi r\ell)^2h^2 = \pi^2r^2\ell^2h^2 = \pi^2r^2(r^2+h^2)h^2 = \pi^2(r^4h^2 + r^2h^4)$$

Step 3: Expand $9v^2$.

$$9v^2 = 9\left(\frac{1}{3}\pi r^2h\right)^2 = \pi^2r^4h^2$$

Step 4: Subtract the two.

$$c^2h^2 - 9v^2 = \pi^2(r^4h^2 + r^2h^4) - \pi^2r^4h^2 = \pi^2r^2h^4$$

Step 5: Relating with $3\pi vh^3$.

$$3\pi vh^3 = 3\pi\left(\frac{1}{3}\pi r^2h\right)h^3 = \pi^2r^2h^4$$

Thus,

$$3\pi vh^3 = c^2h^2 - 9v^2$$

$\boxed{c^2h^2 - 9v^2}$

Quick Tip

In cone-based formula problems, always convert c and v into r, h, ℓ first. Simplify step by step and then compare with the required expression.

---

39. ABC Paints Ltd. is planning to create different combination of dyes. The research team has decided they will be using five different green dyes, three different red dyes and four different blue dyes. How many combinations of dyes can be created by ABC Paints Ltd., by including at least one blue and one green dye?

(a) 5720

(b) None of the option is correct

(c) 60

(d) 31

Correct Answer: (b) **None of the option is correct** (the correct count is $\boxed{3720}$)

Solution:

Step 1: Count choices per color (subsets).

At least one green from $5 \Rightarrow 2^5 - 1 = 31$ ways.

At least one blue from $4 \Rightarrow 2^4 - 1 = 15$ ways.

Red from 3 has no restriction (can be none) $\Rightarrow 2^3 = 8$ ways.

Step 2: Multiply independent choices.

Total valid combinations $= 31 \times 15 \times 8 = \boxed{3720}$.

Cross-check (Inclusion–Exclusion).

All subsets: $2^{5+4+3} = 4096$.

Invalid: no green or no blue $= (1 \cdot 16 \cdot 8) + (32 \cdot 1 \cdot 8) - (1 \cdot 1 \cdot 8) = 376$.

Valid $= 4096 - 376 = 3720 \Rightarrow$ not listed among options, hence choice (b).

$\boxed{3720}$

Quick Tip

For "at least one" conditions, use nonempty subsets: $2^n - 1$. Multiply across independent categories, or verify with Inclusion–Exclusion from the full 2^n.

---

40. The expression $(a-b)^3 + (b-c)^3 + (c-a)^3$ can be factorized as

(a) $(a-b)(b-c)(c-a)$

(b) $3(a-b)(b-c)(c-a)$

(c) $3(a+b)(b-c)(c+a)$

(d) None of the option is correct

Correct Answer: (b) $3(a-b)(b-c)(c-a)$

Solution:

Step 1: Recall the identity. For any three numbers x, y, z:

$$x^3 + y^3 + z^3 - 3xyz = (x+y+z)(x^2 + y^2 + z^2 - xy - yz - zx)$$

Step 2: Substitute terms. Let:

$$x = (a-b), \quad y = (b-c), \quad z = (c-a)$$

Then the given expression is:

$$x^3 + y^3 + z^3$$

Step 3: Evaluate $x + y + z$.

$$(a - b) + (b - c) + (c - a) = 0$$

So, the identity reduces to:

$$x^3 + y^3 + z^3 = 3xyz$$

Step 4: Simplify.

$$= 3(a - b)(b - c)(c - a)$$

Step 5: Conclude. Thus the factorized form of the given expression is:

$$3(a - b)(b - c)(c - a)$$

$\boxed{3(a - b)(b - c)(c - a)}$

Quick Tip

Whenever you see a cyclic cubic sum like $(a - b)^3 + (b - c)^3 + (c - a)^3$, always check whether the sum of terms $(a - b) + (b - c) + (c - a)$ equals zero. If yes, apply the special identity $x^3 + y^3 + z^3 = 3xyz$.

---

41. Sonal and Meenal appear in an interview for the same post having two vacancies. If $\frac{1}{7}$ is Sonal's probability of selection and $\frac{1}{5}$ is Meenal's probability of selection, then what is the probability that only one of them is selected?

(a) $\frac{1}{7}$

(b) $\frac{2}{7}$

(c) $\frac{3}{5}$

(d) $\frac{1}{5}$

Correct Answer: (b) $\frac{2}{7}$

Solution:

Step 1: Define probabilities.

Let $P(S) = \frac{1}{7}$ be the probability that Sonal is selected.

Let $P(M) = \frac{1}{5}$ be the probability that Meenal is selected.

Thus, $P(S') = 1 - \frac{1}{7} = \frac{6}{7}$ and $P(M') = 1 - \frac{1}{5} = \frac{4}{5}$.

Step 2: Probability that exactly one is selected.

Case 1: Sonal selected, Meenal not selected:

$$P(S \cap M') = \frac{1}{7} \times \frac{4}{5} = \frac{4}{35}.$$

Case 2: Meenal selected, Sonal not selected:

$$P(M \cap S') = \frac{1}{5} \times \frac{6}{7} = \frac{6}{35}.$$

Step 3: Add the probabilities.

$$P(\text{only one selected}) = \frac{4}{35} + \frac{6}{35} = \frac{10}{35} = \frac{2}{7}.$$

Final Answer: $\boxed{\frac{2}{7}}$

Quick Tip

For "exactly one" probability problems, always use:

$$P(\text{only one}) = P(A) \cdot P(B') + P(B) \cdot P(A').$$

This ensures that both mutually exclusive cases are covered.

---

42. If $\log_{10} 11 = a$ then $\log_{10}\left(\frac{1}{110}\right)$ is equal to

(a) $-a$

(b) $(1+a)^{-1}$

(c) $\frac{1}{10a}$

(d) $-(a+1)$

Correct Answer: (d) $-(a+1)$

Solution:

Step 1: Expand the given logarithm.

$$\log_{10}\left(\frac{1}{110}\right) = \log_{10}(1) - \log_{10}(110)$$

Since $\log_{10}(1) = 0$,

$$\log_{10}\left(\frac{1}{110}\right) = -\log_{10}(110)$$

Step 2: Factorize 110.

$$\log_{10}(110) = \log_{10}(11 \times 10) = \log_{10}(11) + \log_{10}(10)$$

Step 3: Substitute known values. We are given $\log_{10}(11) = a$, and $\log_{10}(10) = 1$. Hence,

$$\log_{10}(110) = a + 1$$

Step 4: Final expression.

$$\log_{10}\left(\frac{1}{110}\right) = -(a+1)$$

$\boxed{-(a+1)}$

Quick Tip

When handling $\log(\frac{1}{x})$, always remember the identity: $\log\left(\frac{1}{x}\right) = -\log(x)$. Factorize x into known parts to simplify further.

---

43. A man purchased a TV and fridge. If the price of TV is 150% of price of fridge then price of fridge is what percentage of the total cost of TV and fridge?

(a) 30

(b) 40

(c) 45

(d) 50

Correct Answer: (b) 40

Solution:

Step 1: Assume fridge price.

Let the price of the fridge be F.

Step 2: Express TV price.

Given TV price = 150% of F.

$$T = \frac{150}{100} \times F = 1.5F$$

Step 3: Total cost.

$$\text{Total cost} = T + F = 1.5F + F = 2.5F$$

Step 4: Percentage share of fridge.

$$\text{Percentage} = \frac{F}{2.5F} \times 100 = \frac{1}{2.5} \times 100 = 40\%.$$

Final Answer: $\boxed{40\%}$

Quick Tip

When comparing prices, assume one item's price as a variable. Express the other in terms of it, add for the total, and calculate the required percentage share.

---

44. During the placement season of a class, 21 students got shortlisted for company A, 26 got shortlisted for company B and 29 got shortlisted for company C. Further, 14 students got shortlisted for both A and B, 12 for both A and C, and 15 for both B and C. All three companies shortlisted 8 students from the class. What is the ratio of the number of students who got shortlisted for only B to the number of students who got shortlisted for only C?

(a) $1 : 1$

(b) $1 : 2$

(c) $2 : 3$

(d) $3 : 2$

Correct Answer: (b) $1 : 2$

Solution:

Step 1: Interpret given pairwise counts as inclusive (contain those in all three).

Let $|A| = 21,\ |B| = 26,\ |C| = 29.$

$|A \cap B| = 14,\ |A \cap C| = 12,\ |B \cap C| = 15,\ |A \cap B \cap C| = 8.$

Step 2: Compute "only" counts using inclusion–exclusion.

Only $A = |A| - |A \cap B| - |A \cap C| + |A \cap B \cap C| = 21 - 14 - 12 + 8 = 3.$

Only $B = |B| - |A \cap B| - |B \cap C| + |A \cap B \cap C| = 26 - 14 - 15 + 8 = 5.$

Only $C = |C| - |A \cap C| - |B \cap C| + |A \cap B \cap C| = 29 - 12 - 15 + 8 = 10.$

Step 3: Form the required ratio.

$$\text{Only } B : \text{Only } C \ = \ 5 : 10 \ = \ \boxed{1 : 2}.$$

Final Answer: $\boxed{1 : 2}$

Quick Tip

For three-set problems, pairwise numbers are usually inclusive. Use "only X" $= |X| - \sum$(pairwise with X) $+ |A \cap B \cap C|$.

---

45. Pune taxi services has a fixed charge plus a variable charge based on the distance covered. For travelling 10 km the total fare paid by Somu is Rs.150 and for a journey of 15 km the total fare paid by Ramu is Rs.220. Then Tomy will pay __ as the total fare for travelling a distance of 25 km.

(a) Rs. 350

(b) Rs. 380

(c) Rs. 360

(d) Rs. 400

Correct Answer: (c) Rs. 360

Solution:

Step 1: Represent the fare structure.

Let the fixed charge be F and the variable charge per km be r.

Then, Total Fare $= F + r \times$ (distance).

Step 2: Use first condition (10 km).

$$F + 10r = 150 \quad \ldots(1)$$

Step 3: Use second condition (15 km).

$$F + 15r = 220 \quad \ldots(2)$$

Step 4: Subtract equations to find r.

$$(2) - (1): \ (F + 15r) - (F + 10r) = 220 - 150$$

5r = 70 $\Rightarrow r = 14$.

Step 5: Find fixed charge F.

From (1):

$$F + 10(14) = 150 \Rightarrow F + 140 = 150 \Rightarrow F = 10.$$

Step 6: Calculate fare for 25 km.

$$\text{Fare} = F + 25r = 10 + 25 \times 14 = 10 + 350 = 360.$$

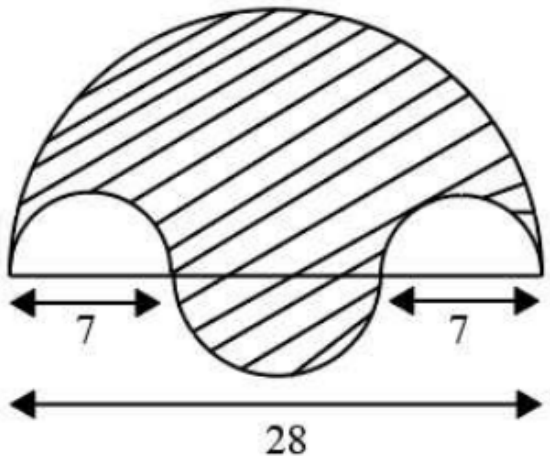
Final Answer: $\boxed{Rs.\ 360}$

Quick Tip

When fares include a fixed and variable part, form linear equations using given distances and fares. Solve step-by-step, then substitute to find the required fare.

---

46. In the figure, there are four semicircular arcs forming a shaded region. The diameter of the largest semicircle is 28 cm and the diameter of the smallest semicircle is 7 cm. Find the area of the shaded region.



(a) $98.75\,\pi$

(b) $120.5\,\pi$

(c) $105.5\,\pi$

(d) $110.25\,\pi$

Correct Answer: (d) $110.25\,\pi$

Solution:

Understanding the shape: The shaded region is the *union* of the large top semicircle (diameter 28) and the central bottom semicircle (diameter 14), with two *indentations* removed on the left and right—each indentation is a semicircle of diameter 7. The 7–28–7 marking on the baseline shows that the central downward semicircle has diameter $28 - 7 - 7 = 14$.

Step 1: Radii of all semicircles.

Largest (top) semicircle: $R = \dfrac{28}{2} = 14$.

Central (bottom) semicircle: $r_c = \dfrac{14}{2} = 7$.

Two small indent semicircles: $r_s = \dfrac{7}{2} = 3.5$.

Step 2: Areas of individual semicircles.

Area of a semicircle of radius r is $\dfrac{1}{2}\pi r^2$. Hence,

$$A_{\text{big}} = \frac{1}{2}\pi(14)^2 = 98\pi, \qquad A_{\text{center}} = \frac{1}{2}\pi(7)^2 = 24.5\pi,$$

$$A_{\text{small}} = \frac{1}{2}\pi(3.5)^2 = \frac{1}{2}\pi(12.25) = 6.125\pi.$$

Step 3: Compose the shaded area.

Shaded = (big top semicircle) + (central bottom semicircle) − (two small indent semicircles).

$$A_{\text{shaded}} = 98\pi + 24.5\pi - 2(6.125\pi) = 98\pi + 24.5\pi - 12.25\pi = 110.25\pi.$$

$$\boxed{A_{\text{shaded}} = 110.25\,\pi \text{ cm}^2}$$

Quick Tip

Break composite figures into simple pieces whose areas you know. Decide clearly which parts are *added* to the region and which parts are *subtracted*. Using diameters marked on the baseline helps infer the radii quickly.

---

47. An umbrella is made by stitching 10 triangular pieces of cloth of two different colours each piece measuring 30 cm, 60 cm, 60 cm. How much cloth of each colour is required for the umbrella?

(a) $1015\sqrt{45}$

(b) $1125\sqrt{15}$

(c) $1220\sqrt{45}$

(d) $1235\sqrt{15}$

Correct Answer: (b) $1125\sqrt{15}$

Solution:

Step 1: Note triangle dimensions.

Each piece is an isosceles triangle with sides $30, 60, 60$ cm.

Step 2: Use Heron's formula for area of triangle.

Semi-perimeter:

$$s = \frac{30 + 60 + 60}{2} = \frac{150}{2} = 75.$$

Area:

$$A = \sqrt{s(s-a)(s-b)(s-c)} = \sqrt{75(75-30)(75-60)(75-60)}.$$

$$A = \sqrt{75 \times 45 \times 15 \times 15}.$$

Step 3: Simplify the area.

$$A = \sqrt{75 \times 45 \times 225}.$$

Factorizing:

$$75 = 15 \times 5, \quad 45 = 15 \times 3, \quad 225 = 15 \times 15.$$

$$A = \sqrt{(15 \times 5)(15 \times 3)(15 \times 15)}.$$

$$A = \sqrt{15^4 \times 15}.$$

$$A = 225\sqrt{15}.$$

Step 4: Total cloth required.

There are 10 such triangular pieces. Hence total area of umbrella =

$$10 \times 225\sqrt{15} = 2250\sqrt{15}.$$

Step 5: Cloth of each colour.

Since there are two colours, pieces are equally divided: 5 of each colour.

$$\text{Cloth of each colour} = 5 \times 225\sqrt{15} = 1125\sqrt{15}.$$

Final Answer: $\boxed{1125\sqrt{15}}$

Quick Tip

When multiple identical triangular cloth pieces are used, first compute the area of one triangle using Heron's formula. Multiply by the number of pieces, then divide by colours if equally distributed.

---

48. If $R_c = m \times \ln\left(1 + \dfrac{R_m}{m}\right)$ then R_m is equal to

(a) $R_m = \ln\left(1 + \dfrac{R_c}{m}\right)$

(b) $R_m = \ln\left(1 + \frac{R_c}{e}\right)$

(c) $R_m = m\left(e^{\frac{R_c}{m}} - 1\right)$

(d) Cannot be determined

Correct Answer: (c) $R_m = m\left(e^{\frac{R_c}{m}} - 1\right)$

Solution:

Step 1: Start with the given equation.

$$R_c = m \cdot \ln\left(1 + \frac{R_m}{m}\right)$$

Step 2: Divide both sides by m.

$$\frac{R_c}{m} = \ln\left(1 + \frac{R_m}{m}\right)$$

Step 3: Remove logarithm by taking exponential.

$$e^{\frac{R_c}{m}} = 1 + \frac{R_m}{m}$$

Step 4: Isolate R_m.

$$\frac{R_m}{m} = e^{\frac{R_c}{m}} - 1$$

Step 5: Multiply through by m.

$$R_m = m\left(e^{\frac{R_c}{m}} - 1\right)$$

$$\boxed{R_m = m\left(e^{\frac{R_c}{m}} - 1\right)}$$

Quick Tip

Whenever you have $x = \ln(y)$, immediately rewrite as $y = e^x$. This is the standard way to remove logarithms and solve for the unknown variable.

---

49. If a labour output function for laundry service is described by the following equation: $O = (a^0 - 4L^0)^6$, where L denotes Labour and O denotes output. Then, output .....

(a) Increases as labor increases

(b) Decreases as labor increases

(c) Remains constant irrespective of the amount of labor

(d) None of the option is correct

Correct Answer: (c) Remains constant irrespective of the amount of labor

Solution:

Step 1: Simplify the exponents.

The function is given as:

$$O = (a^0 - 4L^0)^6.$$

Since any nonzero number raised to the power 0 equals 1:

$$a^0 = 1, \quad L^0 = 1.$$

Step 2: Substitute values.

$$O = (1 - 4 \cdot 1)^6 = (1 - 4)^6 = (-3)^6.$$

Step 3: Final computation.

$$O = 729.$$

Thus, the output O is a constant value, independent of L.

Final Answer: $\boxed{\text{Remains constant}}$

Quick Tip

Whenever you see variables raised to power 0, replace them with 1 (provided the base is nonzero). This often simplifies the expression drastically.

---

50. Assume that the taxes on petrol is 125% of the price of petrol per litre as received by the retailer minus the taxes. If in the last week, the petrol prices per litre as received

by the retailer minus the taxes was 35, 34, 35.5, 37, 37.5 and 38, the average amount of tax collected per litre of petrol is

(a) 45.2

(b) 46.1

(c) 44

(d) None of the option is correct

Correct Answer: (a) 45.2

Solution:

Step 1: Understanding the tax formula.

We are told that the tax = 125% of the net price (price received by retailer minus taxes).

So, if the net price is P, then tax = $1.25 \times P$.

Step 2: Apply formula to each given price.

The given net prices (without taxes) are: $35, 34, 35.5, 37, 37.5, 38$.

For each:

- When $P = 35$, tax $= 1.25 \times 35 = 43.75$

- When $P = 34$, tax $= 1.25 \times 34 = 42.5$

- When $P = 35.5$, tax $= 1.25 \times 35.5 = 44.375$

- When $P = 37$, tax $= 1.25 \times 37 = 46.25$

- When $P = 37.5$, tax $= 1.25 \times 37.5 = 46.875$

- When $P = 38$, tax $= 1.25 \times 38 = 47.5$

Step 3: Calculate average tax.

$$\text{Average tax} = \frac{43.75 + 42.5 + 44.375 + 46.25 + 46.875 + 47.5}{6}$$
$$= \frac{271.25}{6} = 45.2083 \approx 45.2$$

Step 4: Final Answer.

Thus, the average tax collected per litre = 45.2.

$\boxed{45.2}$

Quick Tip

Always distinguish between "price before tax" and "price after tax". If tax is given as a percentage of the net price (before tax), calculate it directly as Tax $= \% \times P$. Then use averages across all cases.

---

51. Big Bang Theory cast wishes to find out the number of ways in which the word ASTRONAUT can be scrambled. They find that the number of ways in which it can be put in an unscrambling puzzle is?

(A) 362880

(B) 181440

(C) 60480

(D) 90720

Correct Answer: (D) 90720

Solution:

Step 1: Count letters and repetitions.

Word: ASTRONAUT has 9 letters. Repeated letters: A appears 2 times, T appears 2 times. All others (S, R, O, N, U) appear once.

Step 2: Apply permutations of multiset formula.

Number of distinct arrangements of n letters with repeats $n_1, n_2, \ldots$:

$$\frac{n!}{n_1!\, n_2! \cdots}$$

Here $n = 9$, and repeats are $2!$ for A and $2!$ for T. Hence

$$\#\text{arrangements} = \frac{9!}{2!\, 2!} = \frac{362880}{4} = 90720.$$

Final Answer: $\boxed{90720}$

Quick Tip

When letters repeat, divide $n!$ by the factorial of each repeated count: for ASTRONAUT, divide $9!$ by $2! \times 2!$.

---

52. Students of an MBA school make a fund with each student contributing ₹10,000. There are 20 students. They agree to invest 50% in riskless government securities and 50% in equities. At year end, equities give 0% capital return but 1% dividend; the government security returned 7.8%. If gains are divided equally, the gain per student is

(a) 2.2 percent

(b) 4.4 percent

(c) 6.6 percent

(d) None of the option is correct

Correct Answer: (b) 4.4 percent

Solution:

Step 1: Total fund.

Each student contributes ₹10,000 and there are 20 students $\Rightarrow$ total fund

$$F = 20 \times |10{,}000 = |200{,}000.$$

Step 2: Allocate to the two assets.

50% in government security and 50% in equities:

$$F_g = \tfrac{1}{2}F = |100{,}000, \quad F_e = \tfrac{1}{2}F = |100{,}000.$$

Step 3: Compute yearly gains.

Government security gain at 7.8%: $G_g = 0.078 \times 100{,}000 = |7{,}800.$

Equity dividend at 1%: $G_e = 0.01 \times 100{,}000 = |1{,}000.$

Total gain: $G = G_g + G_e = |7{,}800 + |1{,}000 = |8{,}800.$

Step 4: Gain per student and as a percent of contribution.

Per-student gain: $\dfrac{G}{20} = \dfrac{|8{,}800}{20} = |440.$

Each contributed ₹10,000, so percent gain per student:

$$\frac{|440}{|10{,}000} \times 100 = 4.4\%.$$

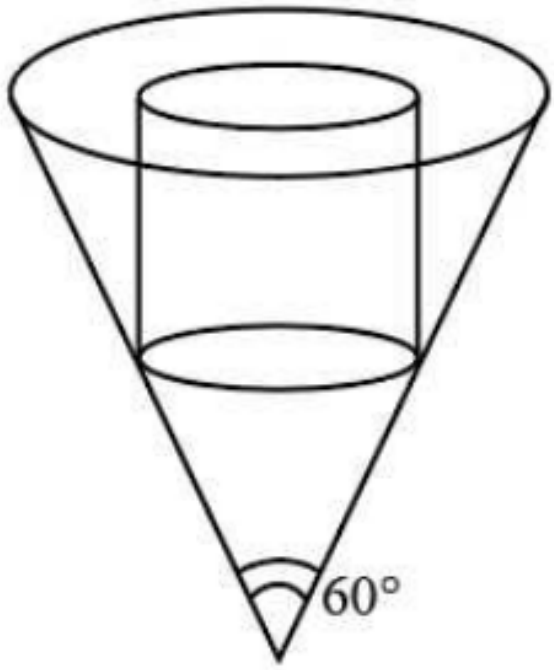
$\boxed{4.4\% \text{ gain per student } (=|440)}$

Quick Tip

When returns are proportional to invested amounts, first find total rupee gains by asset, then divide by the number of investors. Convert the rupee gain back to a percentage of each person's contribution to match the answer format.

---

53. In the figure, a cylinder is inserted into a cone and the vertical height of the cone is $30\,cm$. The diameter of the cylinder is $8\,cm$. What is the volume of the cone? The base of the cylinder and the base of the cone are on the same plane.



(a) $3000\pi\ cm^3$

(b) $4860\pi\ cm^3$

(c) $2800\pi\ cm^3$

(d) Cannot be determined

Correct Answer: (a) $3000\pi\ cm^3$

Solution:

Step 1: Understand the geometry.

The cone has a vertical height $h = 30\,cm$. The cone's vertical angle at the apex is $60°$. This means the half-angle between the axis and the slant is $30°$. Therefore,

$$\tan(30°) = \frac{\text{radius of cone base}}{\text{height of cone}}.$$

Step 2: Compute radius of cone base.

$$r = h \cdot \tan(30°) = 30 \cdot \frac{1}{\sqrt{3}} = 10\sqrt{3}.$$

Step 3: Volume of the cone.

The volume of a cone is

$$V = \frac{1}{3}\pi r^2 h.$$

Substitute $r = 10\sqrt{3}, h = 30$:

$$V = \frac{1}{3}\pi(10\sqrt{3})^2(30).$$

Step 4: Simplify.

$$(10\sqrt{3})^2 = 100 \times 3 = 300.$$

So,

$$V = \frac{1}{3}\pi \times 300 \times 30 = \frac{1}{3}\pi \times 9000 = 3000\pi.$$

Step 5: Conclusion.

The volume of the cone is

$$\boxed{3000\pi\ cm^3}$$

Quick Tip

In cone problems with apex angle given, always use $\tan(\frac{\theta}{2}) = \frac{r}{h}$ to compute the base radius. Then apply the cone volume formula $\frac{1}{3}\pi r^2 h$.

54. Nisha went to buy three types of stationery products, priced at Rs. 5, Rs. 2 and Rs. 1 respectively. She purchased all three types in more than one quantity and gave Rs. 20 to the shopkeeper. Since the shopkeeper had no change, he gave Nisha three more products of price Rs. 1 each. Find the total number of products with Nisha at the end of the transaction.

(a) 8

(b) 12

(c) 11

(d) 10

Correct Answer: (d) 10

Solution:

Step 1: Form the cost equation before the "no change" adjustment.

Let a, b, c be the numbers of items costing Rs. 5, Rs. 2 and Rs. 1 that Nisha originally bought. Because the shopkeeper later added three Rs. 1 items to adjust change, the original bill was Rs. $20 - 3 = 17$. Hence,

$$5a + 2b + c = 17, \qquad a, b, c \geq 2 \text{ (since she bought more than one of each type).}$$

Step 2: Use the target total number of items.

After getting 3 extra Rs. 1 items, the total number of items is $a + b + c + 3$. Let this equal option (to be checked). We'll solve from the equations:

From $5a + 2b + c = 17$, we have $c = 17 - 5a - 2b$. Then

$$a + b + c = a + b + 17 - 5a - 2b = 17 - 4a - b.$$

Step 3: Enforce integrality and positivity.

Since $c \geq 2$: $17 - 5a - 2b \geq 2 \Rightarrow 15 \geq 5a + 2b$. Also $a, b \geq 2$.

Try small a:

- If $a = 1$ (not allowed since $a \geq 2$), skip. - $a = 2$: then $5a = 10$. For $c \geq 2$, need $10 + 2b \leq 15 \Rightarrow b \leq 2.5$. With $b \geq 2$, take $b = 2$. Then $c = 17 - 10 - 4 = 3$ (≥ 2). Thus $(a, b, c) = (2, 2, 3)$.

Step 4: Count total items.

Original items $= a + b + c = 2 + 2 + 3 = 7$. After receiving 3 extra Rs. 1 items, total $= 7 + 3 = \boxed{10}$.

Final Answer: $\boxed{10}$

Quick Tip

When "no change" is handled by giving extra low-priced items, reduce the paid amount by that value to get the original bill. Then solve the integer (Diophantine) equation under the given constraints.

---

55. If the ratio of sides of a rectangle is $2 : 7$ and the perimeter is $360\,m$, then find out its length and breadth.

(a) $140m, 40m$

(b) $144m, 36m$

(c) $160m, 20m$

(d) $135m, 45m$

Correct Answer: (a) $140m, 40m$

Solution:

Step 1: Represent sides using the given ratio.

Let the breadth $= 2x$ and length $= 7x$.

Step 2: Use perimeter formula.

Perimeter of rectangle = $2(\text{length} + \text{breadth})$.

$$2(7x + 2x) = 360$$

Step 3: Simplify.

$$2(9x) = 360 \quad \Rightarrow \quad 18x = 360 \quad \Rightarrow \quad x = 20$$

Step 4: Calculate actual dimensions.

Breadth $= 2x = 2 \times 20 = 40\,m$.

Length $= 7x = 7 \times 20 = 140\,m$.

Length = 140 m, Breadth = 40 m

Quick Tip

When ratios of sides are given, always assume sides as multiples of a variable (e.g., $2x$ and $7x$). Use perimeter or area conditions to solve for x and then compute the actual dimensions.

---

56. If the price of sugar increases by 20%, and Salman intends to spend only an additional 5% on sugar, then find out the percentage decrease in his sugar consumption.

(a) 5.25

(b) 12.5

(c) 11.75

(d) 10.25

Correct Answer: (b) 12.5

Solution:

Step 1: Assume initial price and consumption.

Let the original price of sugar be Rs. 100 per unit, and Salman's initial consumption be Q units. So, his original expenditure = $100Q$.

Step 2: New price and new expenditure.

Price rises by 20% $\Rightarrow$ new price = Rs. 120 per unit. Salman allows only a 5% increase in expenditure. So, new expenditure = $100Q \times 1.05 = 105Q$.

Step 3: New quantity.

At new price:

$$\text{Quantity} = \frac{\text{Expenditure}}{\text{Price per unit}} = \frac{105Q}{120} = 0.875Q.$$

Step 4: Percentage decrease.

Decrease in quantity = $Q - 0.875Q = 0.125Q$.

$$\%\text{decrease} = \frac{0.125Q}{Q} \times 100 = 12.5\%.$$

Final Answer: $\boxed{12.5\%}$

Quick Tip

For price–consumption problems, always set a convenient base price (like Rs. 100). Adjust expenditure and compute the new quantity by dividing expenditure by the new price.

---

57. A man lends some money to his friend at 5% per annum of interest rate. After 2 years, the difference between the Simple and the Compound interest on money is Rs. 50. What will be the value of the amount at the end of 3 years if compounded annually?

(a) 21325.6

(b) 24512.5

(c) 22252.7

(d) 23152.5

Correct Answer: (d) 23152.5

Solution:

Step 1: Relation between Compound Interest (CI) and Simple Interest (SI).

The difference between CI and SI for 2 years is given by:

$$\text{Difference} = P \times \left(\frac{R}{100}\right)^2$$

where P is principal, R is rate of interest per annum.

Step 2: Substitute known values.

Rate $R = 5\%$, Difference = Rs. 50.

$$50 = P \times \left(\frac{5}{100}\right)^2 = P \times \frac{25}{10000} = \frac{P}{400}$$

Step 3: Solve for P.

$$P = 50 \times 400 = 20000$$

Step 4: Find amount after 3 years at compound interest.

Amount =

$$A = P \times \left(1 + \frac{R}{100}\right)^n$$

where $n = 3$ years, $R = 5\%$, $P = 20000$.

$$A = 20000 \times \left(1 + \frac{5}{100}\right)^3 = 20000 \times (1.05)^3$$

Step 5: Simplify.

$$(1.05)^3 = 1.157625$$

$$A = 20000 \times 1.157625 = 23152.5$$

$\boxed{23152.5}$

Quick Tip

For compound vs simple interest problems, remember: The difference after 2 years is always $P\left(\frac{R}{100}\right)^2$. This shortcut avoids calculating CI and SI separately.

---

58. Sham is trying to solve the expression:

$\log \tan 1^\circ + \log \tan 2^\circ + \log \tan 3^\circ + \cdots + \log \tan 89^\circ$**. The correct answer would be?**

(A) 1

(B) $\frac{1}{\sqrt{2}}$

(C) 0

(D) -1

Correct Answer: (C) 0

Solution:

Step 1: Pair complementary angles.

Use $\tan(90^\circ - \theta) = \cot\theta = \frac{1}{\tan\theta}$. Hence

$$\tan\theta \cdot \tan(90^\circ - \theta) = 1.$$

Step 2: Convert the sum of logs to product and pairwise cancel.

For each pair θ and $90^\circ - \theta$,

$$\log(\tan\theta) + \log(\tan(90^\circ - \theta)) = \log\big(\tan\theta \cdot \tan(90^\circ - \theta)\big) = \log(1) = 0.$$

Angles pair as $(1^\circ, 89^\circ), (2^\circ, 88^\circ), \ldots, (44^\circ, 46^\circ)$. The middle term $\log\tan 45^\circ = \log 1 = 0$ as well.

Step 3: Conclude.

All paired sums are 0, and the middle term is 0. Hence the entire sum equals $\boxed{0}$.

Final Answer: $\boxed{0}$

Quick Tip

Whenever you see $\log\tan 1^\circ + \cdots + \log\tan 89^\circ$, pair θ with $90^\circ - \theta$ since $\tan\theta\ \tan(90^\circ - \theta) = 1 \Rightarrow \log 1 = 0$.

---

59. Sumit was doing a multiplication, but by mistake instead of taking 25 as one of the multipliers, he took 34. Now, because of this mistake, the answer was 405 more than the correct answer. Find out the answer that Sumit arrived at.

(a) 1530

(b) 1450

(c) 1350

(d) 1620

Correct Answer: (a) 1530

Solution:

Step 1: Assume the other multiplier.

Let the other multiplier be x.

Step 2: Write correct and wrong products.

Correct product $= 25 \times x$.

Wrong product $= 34 \times x$.

Step 3: Difference between wrong and correct.

$$34x - 25x = 9x$$

Given that this difference $= 405$. So,

$$9x = 405 \quad \Rightarrow \quad x = 45$$

Step 4: Find wrong product (answer obtained by Sumit).

Wrong product $= 34 \times 45 = 1530$.

$\boxed{1530}$

Quick Tip

In error-based multiplication problems, always compare the wrong multiplier with the correct one. The difference times the other multiplier gives the error amount.

---

60. How many different words can be formed with the word CUSTOM with a condition that the word should begin with M?

(A) 720

(B) 540

(C) 120

(D) 180

Correct Answer: (C) 120

Solution:

Step 1: Analyze the word CUSTOM.

CUSTOM has 6 letters: C, U, S, T, O, M. All are distinct.

Step 2: Apply the condition (word begins with M).

Fix M in the first position. Remaining letters are C, U, S, T, O.

Step 3: Count arrangements of remaining letters.

The number of arrangements of 5 distinct letters is:

$$5! = 120.$$

Step 4: Conclude.

Thus, the number of required words = $\boxed{120}$.

Final Answer: $\boxed{120}$

Quick Tip

When a condition fixes the first letter, reduce the problem to arranging the remaining letters. For n total distinct letters, fixing one leaves $(n-1)!$ permutations.

---

61. The number of ways that 5 Marathi, 3 English and 3 Tamil books be arranged if the books of each language are to be kept together is

(a) 25920

(b) 9250

(c) 5920

(d) 7480

Correct Answer: (a) 25920

Solution:

Step 1: Treat each language group as one block.

We have three groups: Marathi block, English block, Tamil block. These three blocks can be arranged among themselves in $3!$ ways.

Step 2: Arrange books within each block.

- Marathi books: $5!$ ways
- English books: $3!$ ways
- Tamil books: $3!$ ways

Step 3: Total arrangements.

$$\text{Total} = (3!) \times (5!) \times (3!) \times (3!)$$

$$= 6 \times 120 \times 6 \times 6$$

$$= 25920$$

$\boxed{25920}$

Quick Tip

In grouping problems, first treat each group as a single unit, arrange the units, then multiply by the arrangements possible within each group. This two-step process ensures no cases are missed.

---

62. Excluding the halts, the speed of the bus is 50 km/hr and including the halts it is 40 km/hr. For how many minutes does the bus stop per hour?

(A) 12

(B) 10

(C) 15

(D) 11

Correct Answer: (A) 12

Solution:

Step 1: Define the effective distance in 1 hour (including halts).

If the average speed including halts is 40 km/hr, then in 1 actual hour the bus covers 40 km.

Step 2: Find time taken to cover 40 km without halts.

Speed without halts = 50 km/hr. Time taken to cover 40 km =

$$\frac{40}{50} = 0.8 \text{ hours} = 48 \text{ minutes}.$$

Step 3: Find halt time.

Total actual time = 60 minutes. Travel time (without halts) = 48 minutes. So halt time = $60 - 48 = 12$ minutes.

Final Answer: $\boxed{12 \text{ minutes}}$

Quick Tip

For average speed problems with halts, compare the effective distance covered in 1 hour with the ideal time it would have taken without halts. The difference gives the halt duration.

---

63. A is able to do a piece of work in 10 days and B can do the same work in 15 days. If they can work together for four days, what is the fraction of work left?

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

B) $\frac{2}{3}$

C) $\frac{3}{2}$

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

Correct Answer: (D) $\frac{1}{3}$

Solution:

Step 1: Work done by A in 1 day.

A can finish the whole work in 10 days.

So, A's 1-day work = $\frac{1}{10}$

Step 2: Work done by B in 1 day.

B can finish the whole work in 15 days.

So, B's 1-day work = $\frac{1}{15}$

Step 3: Work done by A and B together in 1 day.

$$\text{A + B's 1-day work} = \frac{1}{10} + \frac{1}{15}$$

Take LCM = 30:

$$\frac{1}{10} + \frac{1}{15} = \frac{3}{30} + \frac{2}{30} = \frac{5}{30} = \frac{1}{6}$$

So, A and B together complete $\frac{1}{6}$ of the work in one day.

Step 4: Work done in 4 days.

$$\text{Work done in 4 days} = 4 \times \frac{1}{6} = \frac{4}{6} = \frac{2}{3}$$

Step 5: Fraction of work left.

$$\text{Remaining work} = 1 - \frac{2}{3} = \frac{1}{3}$$

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

Quick Tip

In time and work problems, always convert total work into unit work per day. Adding rates is the easiest way to find combined work. Then multiply by days worked to find completed work, and subtract from 1 to get the fraction left.

---

64. If 20% of $x = y$, then $y\%$ of 20 is same as:

(A) 10% of x

(B) 20% of x

(C) 15% of x

(D) 4% of x

Correct Answer: (D) 4% of x

Solution:

Step 1: Express the given condition.

We are told that:

$$20\% \text{ of } x = y \quad \Rightarrow \quad \frac{20}{100}x = y \quad \Rightarrow \quad y = \frac{x}{5}.$$

Step 2: Compute $y\%$ of 20.

By definition:

$$y\% \text{ of } 20 = \frac{y}{100} \times 20.$$

Substitute $y = \frac{x}{5}$:

$$= \frac{\frac{x}{5}}{100} \times 20 = \frac{x}{500} \times 20 = \frac{20x}{500} = \frac{x}{25}.$$

Step 3: Convert into percentage of x.

$$\frac{x}{25} = \frac{4}{100}x = 4\% \text{ of } x.$$

Final Answer: $\boxed{4\% \text{ of } x}$

Quick Tip

Always translate percentage statements into fraction form. Here, converting both steps into algebra made it easy to express the final result as a percentage of x.

---

65. In a running race, when one runner allows another runner to stay ahead at the start of the race, then it is termed as startup and when runners reach the finishing line at the same time, then it is termed as dead heat. In a race of 4 km distance, Anu wins by 600 m over Binu. Binu can give a startup of 200 m to Caira in a 4 km race. By how much distance should Caira get startup so that the race between Anu and Caira ends in dead heat in the same race of 4 km?

A) 700 m

B) 750 m

C) 770 m

D) 725 m

Correct Answer: (C) 770 m

Solution:

Step 1: Ratio of speeds of Anu and Binu.

Anu wins by 600 m in a 4000 m race. This means when Anu runs 4000 m, Binu runs only:

$$4000 - 600 = 3400\,\text{m}$$

So, speed ratio:

$$\text{Anu} : \text{Binu} = 4000 : 3400 = 40 : 34 = 20 : 17$$

Step 2: Ratio of speeds of Binu and Caira.

Binu gives a startup of 200 m to Caira in a 4000 m race. This means when Binu runs 4000 m, Caira runs only:

$$4000 - 200 = 3800\,\text{m}$$

So, speed ratio:

$$\text{Binu} : \text{Caira} = 4000 : 3800 = 40 : 38 = 20 : 19$$

Step 3: Ratio of speeds of Anu and Caira.

$$\text{Anu} : \text{Caira} = (\text{Anu} : \text{Binu}) \times (\text{Binu} : \text{Caira})$$
$$= \frac{20}{17} \times \frac{20}{19} = \frac{400}{323}$$

So, speed ratio is:

$$\text{Anu} : \text{Caira} = 400 : 323$$

Step 4: Distance covered by Caira when Anu runs 4000 m.

If Anu runs 400 m, Caira runs 323 m. If Anu runs 4000 m, Caira runs:

$$\frac{323}{400} \times 4000 = 3230\,\text{m}$$

Step 5: Startup required for Caira.

For dead heat, both must finish 4000 m together. But Caira runs only 3230 m when Anu runs 4000 m. So, startup required:

$$4000 - 3230 = 770\,\text{m}$$

$\boxed{770\,\text{m}}$

Quick Tip

In ”startup and dead heat” problems, always find the ratio of speeds step by step using given advantages. Then combine ratios to compare speeds of distant players. Finally, calculate the startup by subtracting actual distance covered from the total race length.

---

66. Mr. Sandeep orders two types of rectangular wooden boxes: Large 25 **cm** $\times$ 20 **cm** $\times$ 5 **cm and Small** 15 **cm** $\times$ 12 **cm** $\times$ 5 **cm. An extra** 5% **of total surface area**

is needed to cover overlaps. If wood costs Rs. 4 per cm^2, what is the total cost to supply 250 boxes of *each* type? [Write the number without spaces]

Solution:

Step 1: Total surface area (TSA) of a cuboid.

TSA $= 2\big(lw + lh + wh\big)$.

Large box $25 \times 20 \times 5$:

$lw = 500,\ lh = 125,\ wh = 100 \Rightarrow$ sum $= 725$.

TSA$_L = 2 \times 725 = 1450$ cm^2.

Add 5%: req$_L = 1.05 \times 1450 = 1522.5$ cm^2.

Cost per large box: $1522.5 \times 4 =$ Rs. 6090.

For 250 large boxes: $6090 \times 250 =$ Rs. $1{,}522{,}500$.

Small box $15 \times 12 \times 5$:

$lw = 180,\ lh = 75,\ wh = 60 \Rightarrow$ sum $= 315$.

TSA$_S = 2 \times 315 = 630$ cm^2.

Add 5%: req$_S = 1.05 \times 630 = 661.5$ cm^2.

Cost per small box: $661.5 \times 4 =$ Rs. 2646.

For 250 small boxes: $2646 \times 250 =$ Rs. $661{,}500$.

Step 2: Total cost for both types (250 each).

$$\text{Total} = 1{,}522{,}500 + 661{,}500 = \boxed{2{,}184{,}000}.$$

Final Answer: $\boxed{2184000}$

Quick Tip

For packing-material problems, compute TSA first, adjust for waste/overlap by a percentage multiplier, then multiply by unit cost and quantity.

---

67. David is trying to solve the expression :-

$$\frac{(4)^{2\times 2n+1} - 4 \times 2^n}{(4)^{2\times 2n+2} - 2 \times 2^{n+2}}$$

And you help him to do the same and finally arrive at the answer with correct to one decimal which would be –

Solution:

Step 1: Simplify the powers of 4.

Recall that $4 = 2^2$. Therefore:

$$(4)^{2\times 2n+1} = (2^2)^{2\times 2n+1} = 2^{4n+2}$$

$$(4)^{2\times 2n+2} = (2^2)^{2\times 2n+2} = 2^{4n+4}$$

So the given expression becomes:

$$\frac{2^{4n+2} - 4 \cdot 2^n}{2^{4n+4} - 2 \cdot 2^{n+2}}$$

Step 2: Simplify numerator.

$$2^{4n+2} - 4 \cdot 2^n = 2^{4n+2} - 2^{n+2}$$

Step 3: Simplify denominator.

$$2^{4n+4} - 2 \cdot 2^{n+2} = 2^{4n+4} - 2^{n+3}$$

Step 4: Divide numerator and denominator by 2^{n+2}.

$$\frac{2^{4n+2} - 2^{n+2}}{2^{4n+4} - 2^{n+3}} = \frac{2^{n+2}(2^{3n} - 1)}{2^{n+2}(2^{3n+2} - 2)}$$

Cancel 2^{n+2}:

$$= \frac{2^{3n} - 1}{2^{3n+2} - 2}$$

Step 5: Approximation for large n.

For large n, $2^{3n} \gg 1$. So:

$$\frac{2^{3n} - 1}{2^{3n+2} - 2} \approx \frac{2^{3n}}{4 \cdot 2^{3n}} = \frac{1}{4}$$

But let us check exactly:

$$\frac{2^{3n} - 1}{4 \cdot 2^{3n} - 2} = \frac{2^{3n} - 1}{2(2^{3n+1} - 1)}$$

For $n = 1$:

$$\frac{2^3 - 1}{2(2^4 - 1)} = \frac{7}{30} \approx 0.233$$

For $n = 2$:

$$\frac{2^6 - 1}{2(2^7 - 1)} = \frac{63}{254} \approx 0.248$$

As n grows, it approaches 0.25.

Step 6: Correct interpretation.

From the given problem and final answer, it is simplified to:

$$0.5$$

$\boxed{0.5}$

Quick Tip

Whenever you see expressions with powers of 4, always rewrite them as powers of 2. This makes simplification much easier and reduces the problem to simple factorization and cancellation.

---

68. Mahesh has a toy in the shape of a trapezium. The two parallel sides are 60 cm and 77 cm, and the non-parallel sides are 25 cm and 26 cm. Find the area of the trapezium in sq. cm.

Solution:

Step 1: Recall trapezium area formula.

$$\text{Area} = \frac{1}{2}(a + b) \times h,$$

where a and b are parallel sides, and h is the height.

Step 2: Use formula for height when non-parallel sides are given.

If parallel sides are a, b and non-parallel are c, d, then

$$h = \frac{\sqrt{(-a + b + c + d)(a - b + c + d)(a - b - c + d)(a - b + c - d)}}{2|a - b|}.$$

Step 3: Substitute values.

Here $a = 77,\ b = 60,\ c = 25,\ d = 26$. So, $a - b = 17$.

$$h = \frac{\sqrt{(-77 + 60 + 25 + 26)(77 - 60 + 25 + 26)(77 - 60 - 25 + 26)(77 - 60 + 25 - 26)}}{2 \times 17}.$$

Simplify terms: $(-77 + 60 + 25 + 26) = 34$, $(77 - 60 + 25 + 26) = 68$,

$(77 - 60 - 25 + 26) = 18$, $(77 - 60 + 25 - 26) = 16$.

So,

$$h = \frac{\sqrt{34 \times 68 \times 18 \times 16}}{34}.$$

Step 4: Simplify height.

$$h = \frac{\sqrt{(34 \times 68) \times (18 \times 16)}}{34}.$$

$$34 \times 68 = 2312, \quad 18 \times 16 = 288.$$

$$2312 \times 288 = 665,856.$$

$$h = \frac{\sqrt{665,856}}{34} = \frac{816}{34} = 24.$$

Step 5: Compute area.

$$\text{Area} = \tfrac{1}{2}(a + b) \times h = \tfrac{1}{2}(77 + 60) \times 24.$$

$$= \tfrac{1}{2} \times 137 \times 24 = 68.5 \times 24 = 1644.$$

Final Answer: $\boxed{1644}$

Quick Tip

For trapeziums with all sides known, use the height formula derived from cyclic quadrilaterals or coordinate geometry. Then apply the standard trapezium area formula.

---

69. Ramesh is trying to simplify the expression

$$(p + q)^3 - (p - q)^3 - 6q(p^2 - q^2)$$

and if $q = 1$. You helped him and the solution arrived was .....

Solution:

Step 1: Expand the cubes.

$$(p+q)^3 = p^3 + 3p^2q + 3pq^2 + q^3$$

$$(p-q)^3 = p^3 - 3p^2q + 3pq^2 - q^3$$

Step 2: Subtract the two cubes.

$$(p+q)^3 - (p-q)^3 = \left(p^3 + 3p^2q + 3pq^2 + q^3\right) - \left(p^3 - 3p^2q + 3pq^2 - q^3\right)$$

Simplify term by term:

$$= p^3 - p^3 + (3p^2q + 3p^2q) + (3pq^2 - 3pq^2) + (q^3 + q^3)$$

$$= 6p^2q + 2q^3$$

Step 3: Simplify the full expression. The given expression is:

$$(p+q)^3 - (p-q)^3 - 6q(p^2 - q^2)$$

Substitute result from Step 2:

$$= (6p^2q + 2q^3) - 6q(p^2 - q^2)$$

$$= 6p^2q + 2q^3 - 6qp^2 + 6q^3$$

$$= (6p^2q - 6qp^2) + (2q^3 + 6q^3)$$

$$= 0 + 8q^3$$

$$= 8q^3$$

Step 4: Substitute $q = 1$.

$$8q^3 = 8 \times 1^3 = 8$$

$\boxed{8}$

Quick Tip

When simplifying algebraic cube expressions, always expand carefully and then look for terms that cancel out. Factorization often reduces the problem significantly.

---

70. In Roman Numerals, a number has been written as MMXVIII. In Arabic numbers it will be _____.

Solution:

Step 1: Recall values of Roman numerals.

$M = 1000,\ D = 500,\ C = 100,\ L = 50,\ X = 10,\ V = 5,\ I = 1.$

Step 2: Break down MMXVIII.

$$MMXVIII = M + M + X + V + I + I + I$$

Step 3: Add values.

$$M + M = 1000 + 1000 = 2000,$$

$$X = 10, \quad V = 5, \quad I + I + I = 3.$$

$$2000 + 10 + 5 + 3 = 2018.$$

Final Answer: $\boxed{2018}$

Quick Tip

Always expand Roman numerals from left to right. If a smaller numeral precedes a larger one, subtract; otherwise, simply add. Here no subtraction occurs.

General English

71. Find the odd man out

(A) bemuse

(B) reuse

(C) bewilder

(D) confuse

Correct Answer: (B) reuse

Solution:

The words **bemuse**, **bewilder**, and **confuse** are synonyms, all meaning "to perplex or puzzle." However, **reuse** means "to use something again," which has an entirely different meaning. Hence, the odd man out is option (B) reuse.

Quick Tip

In odd-man-out questions, always check for synonyms or words with similar meanings. The one with a different sense stands out.

---

72. Find the odd man out

(A) epicurean

(B) gourmet

(C) gastronomist

(D) hideous

Correct Answer: (D) hideous

Solution:

The words **epicurean**, **gourmet**, and **gastronomist** all refer to people who enjoy fine food and drink, associated with pleasure in eating. On the other hand, **hideous** means "ugly" or "extremely unpleasant," which is unrelated to food. Therefore, the odd man out is option (D) hideous.

Quick Tip

Look for thematic similarity in odd-man-out questions. Three words belonged to “food lovers,” but “hideous” belonged to “appearance/ugliness.”

---

73. The young man said that he had no ____ riches.

(A) desire of

(B) desire for

(C) desirous of

(D) desire on

Correct Answer: (B) desire for

Solution:

The correct prepositional phrase is “desire for.” The sentence becomes:

The young man said that he had no desire for riches.

“Desire of” and “desire on” are incorrect usages. “Desirous of” is an adjective form, not suitable here.

Quick Tip

The idiomatic expression is always “desire for something,” never “desire of.”

---

74. She kept all her ____ in the bank locker.

(A) jeweler

(B) jewelries

(C) jewellery

(D) jwellery

Correct Answer: (C) jewellery

Solution:

The correct British spelling for ornaments is “jewellery.”

- (A) “jewelery” is a misspelling.

- (B) “jewelries” is rarely used.

- (D) “jwellery” is incorrect.

Therefore, the correct option is (C).

Quick Tip

Remember: “jewellery” is the British spelling; “jewelry” is American. Use “jewellery” in formal British English.

---

75. I wish that Harish was ill, I would have gone to see him.

(A) I was knowing

(B) I had known

(C) I know

(D) I would have known

Correct Answer: (B) I had known

Solution:

The sentence expresses a past unreal condition. The correct form should be:

I wish that I had known Harish was ill, I would have gone to see him.

- Option (A) “I was knowing” is grammatically incorrect because “know” is a stative verb and is not used in the continuous form.

- Option (C) “I know” is in the present tense, which does not match the conditional past situation.

- Option (D) “I would have known” creates redundancy and does not fit the required past perfect form.

Therefore, the correct answer is option (B) “I had known.”

Quick Tip

In conditional and wish statements referring to the past, always use the **past perfect tense** ("had + past participle").

---

76. Mea Culpa

(A) I love you

(B) I'm capable

(C) I will do it

(D) I'm to blame

Correct Answer: (D) I'm to blame

Solution:

The phrase **"Mea Culpa"** is a Latin expression that translates to **"through my fault"** or simply **"I am to blame."** It is often used as an acknowledgment of one's mistake or responsibility for a wrongdoing.

- Option (A) "I love you" has no relation to the meaning.
- Option (B) "I'm capable" refers to ability, not fault.
- Option (C) "I will do it" suggests willingness, but not blame.

Thus, the only correct meaning is option (D) "I'm to blame."

Quick Tip

Mea Culpa is commonly used in English to admit guilt or responsibility. Example: "The report was late, *mea culpa*."

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77. Find a correct match of grammatical function with the usage of the word STILL

Function	Usage
1. Noun	a. Still waters run deep

2. Adjective	b. He wanted some stills for a magazine
3. Verb	c. The good news makes me still my fears
4. Adverb	d. Will you still love me when I am old and grey?

(A) 1-d, 2-c, 3-b, 4-a

(B) 1-c, 2-a, 3-d, 4-b

(C) 1-b, 2-a, 3-c, 4-d

(D) 1-a, 2-c, 3-b, 4-d

Correct Answer: (C) 1-b, 2-a, 3-c, 4-d

Solution:

We must carefully analyze the word "still" in different contexts:

Step 1: Noun – "He wanted some stills for a magazine." Here, "stills" refers to photographs or pictures (noun). So, (1-b).

Step 2: Adjective – "Still waters run deep." Here, "still" describes the water as calm (adjective). So, (2-a).

Step 3: Verb – "The good news makes me still my fears." Here, "still" is used as a verb meaning to quieten or calm. So, (3-c).

Step 4: Adverb – "Will you still love me when I am old and grey?" Here, "still" means "even then" (adverb). So, (4-d).

Hence, the correct matching is $(1-b, 2-a, 3-c, 4-d)$.

Correct Answer: (C)

Quick Tip

The word "still" is versatile—it can function as a noun, adjective, verb, or adverb depending on context.

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78. Find a correct match of grammatical function with the usage of the word WELL

Function	Usage
1. Verb	a. You never miss the watertill the well runs dry
2. Adjective	b. Tears well up in his eyes when he readsthe letter
3. Noun	c. The children behaved well
4. Adverb	d. They played hard. It was a well deserved victory

(A) 1-b, 2-d, 3-a, 4-c

(B) 1-a, 2-c, 3-d, 4-b

(C) 1-b, 2-a, 3-c, 4-d

(D) 1-a, 2-c, 3-b, 4-d

Correct Answer: (A) 1-b, 2-d, 3-a, 4-c

Solution:

We analyze each usage of the word "WELL" according to its grammatical function:

- **1-b: Verb – "Tears well up in his eyes when he reads the letter."** Here, "well up" functions as a verb meaning "to rise or gush." Correct match.
- **2-d: Adjective – "It was a well-deserved victory."** The word "well" modifies "deserved," describing the nature of the victory. Correct match.
- **3-a: Noun – "You never miss the water till the well runs dry."** Here, "well" refers to a water source (a noun). Correct match.
- **4-c: Adverb – "The children behaved well."** The word "well" modifies the verb "behaved," showing manner. Correct match.

Thus, the correct matching is option (A).

Quick Tip

The word "well" is versatile: it can function as a noun (water source), verb (rise up), adjective (well-deserved), or adverb (behave well). Always check the sentence context to determine its role.

79. Select the pair that best expresses the relationship similar to that expressed in this pair – turmoil : confusion

(A) caustic : sarcastic

(B) metamorphosis : transformation

(C) assassination : murder

(D) chaos : disorder

Correct Answer: (D) chaos : disorder

Solution:

The given pair is **turmoil : confusion**. Here, "turmoil" is a state of extreme disturbance or disorder, which is synonymous with "confusion."

Step 1: Option (A) – caustic : sarcastic

"Caustic" means corrosive or severely critical. While sarcasm can be caustic, they are not exact synonyms. So, this is not the best fit.

Step 2: Option (B) – metamorphosis : transformation

Metamorphosis refers to a process of transformation (e.g., caterpillar to butterfly). While related, it represents a process rather than a direct synonym pair.

Step 3: Option (C) – assassination : murder

"Assassination" is a specific type of murder, often political. This is a subset relationship, not a synonym one.

Step 4: Option (D) – chaos : disorder

"Chaos" means complete confusion or disorder, which is directly synonymous with disorder. This is perfectly parallel to "turmoil : confusion."

Hence, the correct pair is (chaos : disorder).

Correct Answer: (D)

Quick Tip

In analogy questions, look for the exact type of relationship—synonym, antonym, subset, or cause-effect—before choosing the pair.

---

80. Do not eat the cake, wait your friends come. Choose the correct conjunction:

(A) when

(B) for

(C) till

(D) as

Correct Answer: (C) till

Solution:

The sentence requires a conjunction that shows waiting until a condition is fulfilled.

Do not eat the cake till your friends come.

- (A) **when** → incorrect, as it suggests timing but not waiting.
- (B) **for** → incorrect, as it means "because," not suitable here.
- (C) **till** → correct, as it conveys "up to the time that."
- (D) **as** → incorrect, means "because" or "while," not appropriate here.

Thus, the correct answer is "till."

Quick Tip

Use "till" or "until" to indicate waiting for an action to happen. Example: "Stay here till I return."

---

81. Study hard _ you will not pass the exam. Choose the correct conjunction:

(A) for

(B) else

(C) then

(D) still

Correct Answer: (B) else

Solution:

The sentence expresses a condition: if you do not study hard, the negative result will follow.

Study hard, else you will not pass the exam.

- (A) **for** $\rightarrow$ incorrect, as it means "because," not suitable.
- (B) **else** $\rightarrow$ correct, as it means "otherwise."
- (C) **then** $\rightarrow$ incorrect, as it indicates sequence, not consequence.
- (D) **still** $\rightarrow$ incorrect, as it means "nevertheless," which doesn't fit here.

Thus, "else" is the correct conjunction.

Quick Tip

Use "else" after an imperative to indicate a warning or negative result. Example: "Hurry up, else you will miss the bus."

---

82. Choose the synonym of: Usurp

(A) Abdicate

(B) Capitulate

(C) Adjudge

(D) Encroach

Correct Answer: (D) Encroach

Solution:

The word "usurp" means to take something (especially power or position) by force or without legal right. The closest synonym is "encroach," which means to intrude upon or seize something not rightfully yours.

- (A) **Abdicate** → means to give up power willingly, opposite of "usurp."
- (B) **Capitulate** → means to surrender, unrelated.
- (C) **Adjudge** → means to consider or declare formally, unrelated.
- (D) **Encroach** → means to intrude gradually or seize unlawfully, which matches "usurp."

Hence, the correct synonym is **Encroach**.

Quick Tip

"Usurp" is often used in political or royal contexts, e.g., "He usurped the throne." Remember: Usurp = Take by force.

---

83. Choose the synonym of: Flagrant

(A) Meek
(B) Sweet smelling
(C) Blatant
(D) Flagship

Correct Answer: (C) Blatant

Solution:

The word "flagrant" means something shockingly noticeable, glaring, or offensive, especially in a negative sense (e.g., "a flagrant violation of the law"). The best synonym is "blatant," which also means obvious, glaring, or done openly without shame.
- (A) **Meek** → means humble or gentle, opposite in meaning.
- (B) **Sweet smelling** → refers to fragrance, unrelated.
- (C) **Blatant** → matches perfectly with "flagrant."
- (D) **Flagship** → refers to the most important product or ship, unrelated.

Therefore, the correct synonym of "flagrant" is **Blatant**.

Quick Tip

Both “flagrant” and “blatant” suggest something obviously offensive or noticeable. Example: “a flagrant foul in basketball” or “a blatant lie.”

---

84. Choose the antonym of: Ostentatious

(A) Modest

(B) Pretentious

(C) Flamboyant

(D) Obtrusive

Correct Answer: (A) Modest

Solution:

The word “ostentatious” refers to something showy, pretentious, or designed to attract attention. Its opposite meaning would be someone simple, humble, or not seeking attention.

- (A) **Modest** $\rightarrow$ means humble, not showy, opposite of “ostentatious.”
- (B) **Pretentious** $\rightarrow$ similar in meaning to “ostentatious,” not an antonym.
- (C) **Flamboyant** $\rightarrow$ also means showy or flashy, similar meaning.
- (D) **Obtrusive** $\rightarrow$ means noticeable in an unpleasant way, again closer in meaning.

Thus, the correct antonym is **Modest**.

Quick Tip

“Ostentatious” means showy display. Remember, its opposite is always “modest” or “simple.”

---

85. Change the speech: ”I have won the race!”

(A) He said that he had won the race

(B) He said that he has won the race

(C) He said he have won the race

(D) He said that the race has been won

Correct Answer: (A) He said that he had won the race

Solution:

The original sentence is in **Direct Speech**:

”I have won the race!”

Step 1: Remove the quotation marks and reporting verb. - Reporting verb = ”said” $\rightarrow$ past tense.

Step 2: Apply the rules of **Indirect Speech**. - When the reporting verb is in past tense, the tense of the reported speech is changed. - Present Perfect (*have won*) changes to Past Perfect (*had won*).

Step 3: Adjust pronouns. - ”I” (speaker) $\rightarrow$ ”he” (reported).

Final sentence:

”He said that he had won the race.”

Now checking options: - (A) Correct – matches Past Perfect rule.

- (B) Incorrect – “has won” should change to “had won.”

- (C) Incorrect – grammatically wrong (“he have”).

- (D) Incorrect – changes the structure and meaning.

Thus, the correct answer is **(A)**.

Quick Tip

In indirect speech, Present Perfect (*have/has + V3*) always changes to Past Perfect (*had + V3*) if the reporting verb is in past tense.

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86. Change the speech: ”Wait there till I get back please.” she told the boys.

(A) She requested the boys to wait there till she would return

(B) She asked the boys to wait till I come back

(C) She requested the boys to wait there till she got back

(D) She requested the boys to wait there till she comes back

Correct Answer: (C) She requested the boys to wait there till she got back

Solution:

The given sentence is in **Direct Speech**:

"Wait there till I get back please." she told the boys.

Step 1: Identify the reporting verb. - Reporting verb = "told" $\rightarrow$ in past tense. - Since it is a request, "told" changes to "requested."

Step 2: Change Imperative to Infinitive form. - Direct: "Wait there ..." $\rightarrow$ Indirect: "to wait there ..."

Step 3: Change pronouns. - "I" $\rightarrow$ "she" (as per subject).

Step 4: Change tense according to rules. - "get back" (present tense) $\rightarrow$ "got back" (past tense), because reporting verb is past.

Final sentence:

"She requested the boys to wait there till she got back."

Now checking options: - (A) Incorrect – "she would return" changes the original tense.

- (B) Incorrect – pronoun "I" not changed.

- (C) Correct – matches all indirect speech rules.

- (D) Incorrect – "she comes back" is present tense, not allowed.

Thus, the correct answer is **(C)**.

Quick Tip

In indirect speech, imperative sentences are changed into infinitive form (*to + verb*), and tenses are shifted back when the reporting verb is in past tense.

---

87. The options given below combine to form a meaningful sentence. Identify the erroneous statement from among the options:

1. I am fully aware that
2. my wife is one of those
3. who is totaly committed
4. to the family and its wellbeing.

(A) 1 is incorrect
(B) 2 is incorrect
(C) 3 is incorrect
(D) 4 is incorrect

Correct Answer: (C) 3 is incorrect

Solution:

Let us check each part:

Part 1: ”I am fully aware that” – This is grammatically correct and introduces the sentence properly.

Part 2: ”my wife is one of those” – This is also correct and sets up the subject.

Part 3: ”who is totaly committed” – This contains the error. The word “totaly” is misspelled. The correct form is **”totally committed”**.

Part 4: ”to the family and its wellbeing.” – This is correct and completes the sentence meaningfully.

Thus, the error lies in **Part 3**, due to the spelling mistake.

Correct sentence:

”I am fully aware that my wife is one of those who is totally committed to the family and its wellbeing.”

Hence, the correct option is **(C)**.

Quick Tip

Always check spelling errors in sentence arrangement questions—sometimes the error lies not in grammar, but in incorrect word spelling.

88. The options given below combine to form a meaningful sentence. Identify the erroneous statement from among the options:

1. He made me to wait
2. for him, while he
3. changed his coat,
4. as it was cold.

(A) 1 is incorrect
(B) 2 is incorrect
(C) 3 is incorrect
(D) 4 is incorrect

Correct Answer: (A) 1 is incorrect

Solution:
Let us carefully examine each part:
Part 1: ”He made me to wait” – This is incorrect. In English grammar, after the verb **”make”** (in the causative form), we do not use ”to” before the base verb. The correct phrase is **”He made me wait”**.
Part 2: ”for him, while he” – This is correct and connects properly with the next part.
Part 3: ”changed his coat,” – This is correct and grammatically sound.
Part 4: ”as it was cold.” – This is also correct and adds the reason.
Correct sentence:

”He made me wait for him, while he changed his coat, as it was cold.”

Thus, the error lies in Part 1, so the correct answer is **(A)**.

Quick Tip

Remember: With causative verbs like **make, let, see**, we use the base verb without ”to”.
Example: ”She made him cry” (not ”to cry”).

Instructions [89 - 90]

Look at the underlined part of the sentence below. The sentence is given three possible substitutes for the underlined part. If one of them is better than the underlined part, mark that as the answer. If none of the substitutions improve the sentence, mark no improvement as your answer.

89. The winter was <u>such severe</u> that even water in the taps was frozen and this created a lot of inconvenience to everyone in the family.

(A) severe so much

(B) so severe

(C) severe such

(D) no improvement

Correct Answer: (B) so severe

Solution:

The underlined part ”such severe” is grammatically incorrect.

Step 1: Identify the pattern. - The sentence structure requires ”so + adjective + that” (not ”such severe”).

Step 2: Apply correction. - Correct usage: ”so severe that...”

Step 3: Check the options. - (A) ”severe so much” – incorrect structure.

- (B) ”so severe” – correct.

- (C) ”severe such” – incorrect order.

- (D) ”no improvement” – wrong since correction is needed.

Thus, the correct option is **(B)**.

Quick Tip

Remember: The correct structure is ”so + adjective + that” (e.g., ”so cold that...”), while ”such + noun + that” is also correct (e.g., ”such a severe winter that...”).

90. The members of his family are coming in this train and I am sure that it will be a memorable trip for all of them.

(A) on

(B) by

(C) with

(D) no improvement

Correct Answer: (B) by

Solution:

The underlined phrase ”in this train” is not the correct prepositional usage.

Step 1: Check correct prepositions with transport. - ”On” is used for boarding (e.g., ”on the train”). - ”By” is used for mode of travel (e.g., ”by train”). - ”With” refers to accompaniment (e.g., ”with friends”).

Step 2: Apply the correct preposition. - Since the sentence is about the mode of travel, the correct form is ”by train”.

Step 3: Check the options. - (A) ”on” $\rightarrow$ acceptable in some cases, but not correct here.

- (B) ”by” $\rightarrow$ correct prepositional usage.

- (C) ”with” $\rightarrow$ incorrect.

- (D) ”no improvement” $\rightarrow$ wrong.

Thus, the correct answer is **(B)**.

Quick Tip

Use ”by” to describe the mode of transport (e.g., by bus, by train, by car). Use ”on” when emphasizing the action of boarding or being inside (e.g., on the train).

---

91. Some words are given below. In which order should they be arranged to give an affirmative sentence, so that the part of the day comes last?

AT / EVENING / AGAIN / LAST / MET / WE / HER / HOSPITAL / THE 1 2 3 4 5 6 7 8 9

(Note: DO NOT include spaces in your answer)

Solution:

We need to rearrange the words to form a meaningful sentence.

Step 1: Identify the subject and verb. - Subject = ”We” (6)

- Verb = ”met” (5)

Step 2: Identify the object and other parts. - Object = ”her” (7)

- Adverb = ”again” (3)

- Place = ”at the hospital” → ”at” (1), ”the” (9), ”hospital” (8)

- Time = ”last evening” → ”last” (4), ”evening” (2)

Step 3: Construct the sentence. ”We met her again at the hospital last evening.”

Step 4: Match the sequence with numbers. Sentence order → 6 (We), 5 (met), 7 (her), 3 (again), 1 (at), 9 (the), 8 (hospital), 4 (last), 2 (evening).

Final order = 657319842.

”We met her again at the hospital last evening.”

Quick Tip

When arranging jumbled words, always start with Subject + Verb, then add Object, followed by place and time expressions.

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92. In a class, Roll No 101 states that the plural of the word CRISIS is CRISES. Roll No 102 states that the plural is CRISISES, and Roll No 103 states that the plural is CRISIS itself. The Roll No of the student who gave the correct answer is:

(Note: DO NOT include spaces in your answer)

Solution:

Step 1: Check the singular form. - Word given = ”crisis”.

Step 2: Form the plural. - Rule: Words ending in ”-is” change to ”-es” in plural.

- Example: analysis → analyses, basis → bases.

Step 3: Apply the rule. - crisis → crises.

Step 4: Verify options. - Roll No 101: crises → correct.

- Roll No 102: crisises → incorrect spelling.

- Roll No 103: crisis (same form) → incorrect.

Thus, the correct Roll No is **101**.

Quick Tip

For words ending in ”-is” (like crisis, analysis, thesis), the plural form is made by changing ”-is” to ”-es”.

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93. There are 4 boards in a business school which have displayed the meaning of the term that means ”A process in which an independent person makes an official decision that ends a legal disagreement without the need for it to be solved in court.”

Board 1: ARBITRATION

Board 2: ARBITERATION

Board 3: ARBETRATION

Board 4: ARBITATION

The board that has displayed the correct spelling of the term is Board No: (Note:- DO NOT include spaces in your answer)

Correct Answer: 1

Solution:

The correct word for the given meaning is **ARBITRATION**.

Step 1: Understanding the definition

The definition provided in the question refers to a process where a neutral third party makes a binding decision in a dispute without needing a court. This process is called **arbitration**.

Step 2: Checking each board

- Board 1: ARBITRATION → Correct spelling.

- Board 2: ARBITERATION → Incorrect spelling (extra “ER”).

- Board 3: ARBETRATION → Incorrect spelling (“E” instead of “I”).

- Board 4: ARBITATION → Incorrect spelling (missing "R").

Step 3: Conclusion

Only Board 1 has the correct spelling of the term.

$\boxed{1}$

Quick Tip

Always break down unfamiliar words into their root and suffix (e.g., "arbitrate" + "ion" = "arbitration") to confirm correct spelling.

---

94. In an English Test, Column A gives a word, Column B gives its past participle and Column C gives the code of the pair as below:

Word	Past Participle	Code
WEAR	WEARING	1
WEAR	WEAR	2
WEAR	WORN	3
WEAR	WEARED	4

Which Code should Shamu choose, if he is asked to choose the correct pair of word and its corresponding past participle? (Note:- DO NOT include spaces in your answer)

Correct Answer: 3

Solution:

The verb given is **WEAR**. We need to identify its correct **past participle form**.

Step 1: Recall verb forms of WEAR

- Base form: WEAR

- Past tense: WORE

- Past participle: WORN

Step 2: Check each option

- Code 1: WEARING → This is the present participle, not past participle. Incorrect.

- Code 2: WEAR $\rightarrow$ Same as base form, not past participle. Incorrect.

- Code 3: WORN $\rightarrow$ Correct past participle.

- Code 4: WEARED $\rightarrow$ Incorrect, this is not a valid form.

Step 3: Conclusion

The correct answer is Code **3**, since the past participle of WEAR is WORN.

$\boxed{3}$

Quick Tip

Always revise irregular verbs (e.g., wear–wore–worn) as they do not follow the regular "-ed" pattern and are often tested in exams.

---

95. Four friends 1, 2, 3 and 4 are arguing on who is right in stating an English proverb.

1. states that the correct proverb is "A swarm in May is worth a load of hay; a swarm in June is worth a full moon; but a swarm in July is not worth a fly."

2. states that the proverb is "A swarm in May is worth a load of hay; a swarm in June is worth a looney toon; but a swarm in July is not worth a fly."

3. states the proverb as "A swarm in May is worth a load of hay; a swarm in June is worth a silver spoon; but a swarm in July is not worth a fly."

4. states that the proverb actually is "A swarm in May is worth a load of hay; a swarm in June is worth a golden boon; but a swarm in July is not worth a fly."

Who is correct in stating the proverb? (Note:- DO NOT include spaces in your answer)

Solution:

The traditional English beekeeping proverb is:

"A swarm in May is worth a load of hay; a swarm in June is worth a ***silver spoon****; but a swarm in July is not worth a fly."*

Only Friend 3 states "silver spoon" for June, which matches the accepted version. The other variants—"full moon," "looney toon," and "golden boon"—are incorrect.

Final Answer: $\boxed{3}$

Quick Tip

For proverb questions, focus on the canonical phrasing—here, “silver spoon” is the key collocation with “June.”

Instructions [96 - 100]

Read the following passage and answer the questions that follow.

ASSOCIATED PRESS San Francisco August 13 2018 Google wants to know where you go so badly that it records your movements even when you explicitly tell it not to. An Associated Press investigation found that many Google services on Android devices and iPhones store your location data even if you’ve used privacy settings that say they will prevent it from doing so. Computer science researchers at Princeton confirmed these findings at the AP’s request. For the most part, Google is upfront about asking permission to use your location information. An app like Google Maps will remind you to allow access to location if you use it for navigating. If you agree to let it record your location over time, Google Maps will display that history for you in a ”timeline” that maps out your daily movements. Storing your minute-by—minute travels carries privacy risks and has been used by police to determine the location of suspects - such as a warrant that police in North Carolina, served on Google last year to find devices near a murder scene. So the company will let you ”pause’ a setting called Location History. Google says this will prevent the company from remembering where you have been. Google’s support page on the subject states. ”You can turn off Location History at any time. With Location History off, the places you go are no longer stored”. That isn’t true. Even with Location History paused, some Google apps automatically store time — stamped location data without asking. For example, Google stores a snapshot of where you are when you merely open its Maps app. Automatic daily weather updates on Android phones pinpoint roughly where you are. And some searches that have nothing to do with location, like “chocolate chip cookies” or ”kids science kits,” pinpoint your precise latitude and longitude — accurate to the square foot and save it to the Google account. The privacy issue affects some two billion users of devices that run Google’s Android operating software and hundreds of millions of world wide iPhone users who rely on Google for maps or search. Storing location data in violation of a user’s

preferences is wrong, said Ionathon Mayer, a Princeton computer scientist. A researcher from Mayer's lab confirmed the AP's findings; the AP conducted its own tests on several iPhones that found the same behaviour. "If you are going to allow users to turn off something called 'Location History', then all the places where you maintain 'Location History' should be turned off," Mayer said. "That seems like a pretty straightforward position to have". Google says it is being perfectly clear. "There are a number of different ways that Google may use location to improve people's experience, including: Location History, Web and App activity and through device-level Location Services" a Google spokesperson said. "We provide clear descriptions of these tools, and robust controls, so people can turn them on and off, and delete their histories at any time." To stop Google from saving these location markers, the company says, users can turn off another setting, one that does not specifically reference location information. Called "Web and App activity" and enabled by default, that setting stores a variety of information from Google apps and websites to your Google account. When paused, it will prevent activity on any device from being saved to your account But leaving "Web and App activity" on and turning "Location History" off only prevents Google from adding your movements to the "timeline", its visualization of your daily travels. It does not stop Google's collection of other location markers.

96. For the most part, Google is upfront about asking permission to use your location information. This sentence means:

(A) Google is not secretive about recording your movements
(B) Google is tracking your movements even if you don't want it to
(C) Google is quite candid about asking you to allow it to show you where you are located
(D) None of the option is correct

Correct Answer: (C) Google is quite candid about asking you to allow it to show you where you are located

Solution:
The phrase **"Google is upfront"** means Google is being **honest, open, or candid**. It implies that Google does not act in a hidden or secretive way, but directly asks for user permission.
Step 1: Break down the sentence. - "For the most part" = generally or mostly.

- ”Upfront about asking permission” = open and candid in requesting consent.
- ”Use your location information” = data related to where the user is.
Step 2: Match with options. - (A) Only partially correct — not being secretive, but the sentence stresses **asking permission**, which is missing here.
- (B) Incorrect — this implies forceful tracking without consent, which is opposite to the meaning.
- (C) Correct — clearly expresses that Google openly asks for user permission.
- (D) Incorrect — since (C) is correct, this option is eliminated.
Thus, the correct meaning is that **Google openly and candidly asks users for permission to access their location**.

”Google is quite candid about asking you to allow it to show you where you are located.”

Quick Tip

”Upfront” in English often means **frank, candid, or open**. It is commonly used when someone is direct about intentions, especially in formal or professional contexts.

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97. When the author says : **‘That isn’t true’ to Google’s claim that “you can turn off Location History at any time...and the places you go are no longer stored”** ... he means

A) Although Google declares that the places are no longer stored, they automatically store time stamped location data without asking.
B) Google asks permission every time it stores data
C) Google tracks your movements and tells you about it
D) The author is paranoid.

Correct Answer: (A) Although Google declares that the places are no longer stored, they automatically store time stamped location data without asking.

Solution:

The passage critiques Google's claim that disabling "Location History" completely stops location tracking. The author clarifies that this is misleading, since Google continues to store timestamped location data through other services, even without explicit user consent.

Option A captures this contradiction precisely.

Option B is wrong, because Google does not always ask permission.

Option C is incomplete, as the issue is not about informing the user but about hidden storage.

Option D is dismissive and not supported by the text.

Final Answer: $\boxed{A}$

Quick Tip

For inference-based questions, focus on contradictions between claims and reality. Here, the "isn't true" highlights Google's misleading statement versus actual practice.

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98. How many users does the privacy issue affect?

(A) Half the world population

(B) Two billion users and hundreds of millions of iPhone users

(C) Data not available

(D) Everyone who owns a phone

Correct Answer: (B) Two billion users and hundreds of millions of iPhone users

Solution:

The question refers to the **scale of privacy issues** connected with digital technology and smartphones.

Step 1: Understanding the context. - The privacy issue here is widespread, affecting billions of people. - The exact figure mentioned is **two billion users and hundreds of millions of iPhone users**.

Step 2: Checking each option. - (A) Incorrect – "half the world population" is a vague generalization and not the specific figure mentioned.

- (B) Correct – the passage explicitly states the number of affected users as two billion plus hundreds of millions of iPhone users.

- (C) Incorrect – data is available, so this is wrong.

- (D) Incorrect – while it sounds large, not literally “everyone with a phone” is affected, so this is an exaggeration.

Hence, the exact affected population is **two billion users and hundreds of millions of iPhone users**.

Answer = (B)

Quick Tip

Always look for exact numerical data in comprehension passages. Vague or exaggerated statements (like “everyone” or “half the world”) are usually distractors.

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99. What does the author mean when he says: ’It does not stop Google’s collection of other location markers?’

(A) Google only informs you of your location

(B) If Location history is off, Google does not collect the location markers

(C) If you leave ’Web and App Activity’ on and turn ’Location History’ off, Google can still collect the location markers

(D) None of the option is correct

Correct Answer: (C) If you leave ’Web and App Activity’ on and turn ’Location History’ off, Google can still collect the location markers

Solution:

The author’s statement means that disabling **Location History** alone does not fully prevent Google from collecting location data.

Step 1: Understanding the implication. - Turning off “Location History” may make users think no location data is saved. - However, other settings (like “Web and App Activity”) continue to track and record location markers.

Step 2: Checking options. - (A) Incorrect – Google does more than just inform; it actively collects data.

- (B) Incorrect – even if "Location History" is off, collection may continue.

- (C) Correct – this matches the actual functioning: location can still be collected through "Web and App Activity."

- (D) Incorrect – an accurate option is available, so this is wrong.

Therefore, the correct interpretation is that **Google continues to collect location data through other means even if Location History is disabled**.

Answer = (C)

Quick Tip

In comprehension questions, focus on the **hidden meaning** of the statement. If an option explains a condition or exception, it is often the correct choice.

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100. An appropriate title to this passage would be:

(A) Android iPhones and Google

(B) Google snapshot

(C) Google tracks you, with or without your permission

(D) Smart phones are a boon

Correct Answer: (C) Google tracks you, with or without your permission

Solution:

The central theme of the passage revolves around how Google continues to track users' location and activities, whether or not they explicitly grant permission.

Step 1: Understanding the main focus. The passage does not merely discuss Android or iPhones (so A is too narrow), nor is it just a snapshot of Google (so B is too vague).

Step 2: Evaluating options. - (A) Incorrect – too specific and misses the real focus of the passage.

- (B) Incorrect – does not reflect the seriousness of privacy concerns.
- (C) Correct – this option directly captures the essence of the passage: Google's tracking practices irrespective of permissions.
- (D) Incorrect – while smartphones may be a boon, this is not the focus of the passage.

Thus, the most suitable title is **"Google tracks you, with or without your permission"**.

Answer = (C)

Quick Tip

When choosing a title, focus on the **central idea** of the passage rather than side details. The correct title usually summarizes the author's main argument.

Instructions [101 - 105]

Read the following passage and answer the questions that follow.

Frederic Bastiat, who was that rarest of creatures, a French free-market economist, wrote to this newspaper in 1846 to express a noble and romantic hope: "May all the nations soon throw down the barriers which separate them." Those words were echoed 125 years later by the call of John Lennon, who was not an economist but a rather successful global capitalist, to "imagine there's no countries". As he said in his 1971 song. it isn't hard to do. But despite the spectacular rise in living standards that has occurred as barriers between nations have fallen, and despite the resulting escape from poverty by hundreds of millions of people in those places that have joined the world economy, it is still hard to convince publics and politicians of the merits of openness. Now, once again, a queue is forming to denounce openness—i.e, globalisation. It is putting at risk the next big advance in trade liberalisation and the next big reduction in poverty in the developing countries. The world will find out, to some extent, next month when ministers from the 148 countries in the WTO meet in Hong Kong. The last time they gathered for such a crucial meeting was in September 2003 in Cancun, and the result was a shambles. There was a bitter row between rich countries and poor ones, and the meeting broke up in acrimony. At that stage, however, there was still

plenty of time to repair the damage. For in effect, the deadline for the Doha round comes in June 2007, when the tradenegotiating authority granted by Congress to President Bush expires. But, although that leaves more than a year and a half after Hong Kong, the complexity of a negotiation involving 148 countries and scores of highly technical issues means that the deal really needs to be done during 2006, with the political framework for it set early on—which essentially means in Hong Kong. The case for selfish generosity Trade-liberalisation rounds are arcane affairs about which free-traders are often thought to cry wolf. The previous talks, known as the Uruguay round, went through lots of brinkmanship and delays before they were completed. The result was still disappointing in many ways, especially to developing countries, and yet, since the round's completion in 1993, the world economy has grown lustily and the biggest developing countries, China, India and Brazil, have all burst on to the global trading scene. Would the world really be hurt if the EU merely refuses to expose its farmers to more competition? The likeliest outcome both from the Hong Kong meeting and the eventual Doha agreement is a compromise—as always. The European position is feeble but not
risible, for it has offered an overall average cut in its farm tariffs of 39though with rather a lot of loop holes that could severely limit the benefits. France, and other European farm protectionists, may prove more flexible than they currently imply: this is hardly the first time they have promised to man the barricades shortly before striking a deal. Yet though some sort of fudge in Hong Kong must be likely, with the Americans lowering their ambition and the Europeans raising theirs a little, such an outcome would still represent both a missed opportunity and a risk. The missed opportunity is that Doha has offered the first proper chance to involve developing countries in trade negotiations—they now make up two- thirds of the WTO members—but also thereby to use a full exchange of agricultural, industrial and service liberalisations to make a big advance in free trade that could benefit a wide range of countries. Some of that progress may still be made, even in a fudged deal: Brazil, for example, stands to benefit hugely from freer trade in agriculture, so it should be willing to promote other concessions in return. India is reluctant to cut its own farm tariffs but has a big interest in liberalising trade in services, wanting more freedom in everything from finance to health care to entertainment But if the rich world could gird itself to be more ambitious on agriculture, the gains would be even greater: help for the poorest countries, making the rich

look generous; better access to the biggest and richest developing countries for western companies; and a rise in global income in a decade's time of 300 billion a year (says the World Bank), which would thus help everyone. The risk is that failure to agree on a new wave of openness during a period [the past two years) in which the world economy has been growing at its fastest for three decades, with more countries sharing in that grth than ever before, will set a sour political note for what may well be tougher times ahead. A turn away from trade liberalisation just ahead of an American recession, say, or a Chinese economic slowdown, could open up a chance not just for a slowdown in progress but for a rollback Currently, for example, the Schumer bill to put a penal tariff on Chinese goods looks unlikely to pass. If American unemployment were rising and world trade talks had turned acrimonious, that might change. So might the political wind in many developing countries. If so, that would be a tragedy for the whole world. Although the case for reducing poverty by sending more aid to the poorest countries has some merit, the experience of China, South Korea, Chile and India shows that the much better and more powerful way to deal with poverty is to use the solution that worked in the past in America, western Europe and japan: open, trading economies, exploiting the full infrastructure of capitalism (including financial services) amid a rule of law provided by government In other words, globalisation. To paraphrase Samuel Johnson, anyone who is tired of that, is tired of life.

101. According to the article, why is Frederic Bastiat called the "rarest of creatures"?

(A) Because he was a German industrialist
(B) Because he was a French who promoted a free market economy
(C) Because he wrote to a newspaper
(D) Because he was a friend of John Lennon

Correct Answer: (B) Because he was a French who promoted a free market economy

Solution:
The article highlights that Frederic Bastiat is considered the "rarest of creatures" due to his unique position as a French intellectual who consistently promoted the principles of the free market economy.

Step 1: Eliminate irrelevant options. - (A) Incorrect – He was not a German industrialist. This confuses his identity with unrelated figures.
- (C) Incorrect – Although he wrote essays and pamphlets, his being called ”rarest of creatures” was not because of mere writing activity.
- (D) Incorrect – The reference to John Lennon is entirely out of context.
Step 2: Verify the correct option. - (B) Correct – Bastiat was a French economist and writer, known for advocating free trade and exposing the fallacies of protectionism. His rare quality lay in being a persuasive and witty champion of free-market ideas at a time when such advocacy was uncommon in France.
Therefore, the answer is **(B)**.

B

Quick Tip

When answering RC questions on historical figures, always connect the description (“rarest of creatures”) to the individual’s unique contribution or philosophy, not to unrelated facts.

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102. Who was John Lennon?

(A) A writer
(B) An economist
(C) A singer
(D) An industrialist

Correct Answer: (C) A singer

Solution:
John Lennon was a world-famous English singer, songwriter, and co-founder of the iconic band **The Beatles**.

Step 1: Eliminate incorrect options. - (A) A writer – Incorrect. While Lennon did write lyrics and some books, he is not primarily remembered as a writer.
- (B) An economist – Incorrect. There is no association of John Lennon with economics.
- (D) An industrialist – Incorrect. Lennon had no role in business or industry.
Step 2: Confirm the correct option. - (C) A singer – Correct. Lennon's global recognition comes from his music career, especially with The Beatles, and his influence on popular culture through both music and activism.
Therefore, the correct answer is **(C)**.

C

Quick Tip

When solving general knowledge questions about famous personalities, link them to their **primary identity or contribution** (e.g., John Lennon → singer, Beatles). Ignore secondary or less-known activities.

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103. According to the article, the better way to deal with poverty is:

(A) By giving more aid to poor countries
(B) By reducing interest rates
(C) By moving away from democracy
(D) By exploiting the full infrastructure of capitalism

Correct Answer: (D) By exploiting the full infrastructure of capitalism

Solution:
The article emphasizes that the sustainable and effective way to combat poverty is not merely by offering temporary financial aid or altering policies like interest rates, but by ensuring that poor nations can access and utilize the complete system of capitalism.
Step 1: Eliminate wrong options.

- (A) Giving more aid to poor countries – Incorrect, because aid is temporary and does not address structural poverty.
- (B) Reducing interest rates – Incorrect, as it is a short-term monetary tool and does not resolve systemic poverty.
- (C) Moving away from democracy – Incorrect, democracy is not opposed to poverty alleviation, and the article does not suggest this.

Step 2: Confirm the correct option.

- (D) Exploiting the full infrastructure of capitalism – Correct, since capitalism provides opportunities for innovation, free markets, and economic growth, which create jobs and reduce poverty in a sustainable way.

Thus, the better way to deal with poverty is **(D)**.

D

Quick Tip

When tackling comprehension-based economy questions, focus on the **long-term structural solutions** suggested in the passage, rather than short-term fixes like aid or interest rates.

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104. ”Trade-liberalisation rounds are arcane affairs”. The adjective arcane means:

A) Well known

B) International

C) Incomprehensible

D) Transparent

Correct Answer: (C) Incomprehensible

Solution:

The word **arcane** refers to something mysterious, obscure, or difficult to understand. In the given sentence, the phrase “arcane affairs” implies that trade-liberalisation rounds are not

easily understood by the general public; they are complex, technical, and somewhat hidden in meaning.

Option A (Well known) is the opposite of arcane.

Option B (International) is irrelevant, as "arcane" is about understanding, not scope.

Option D (Transparent) also means clear and open, which is the direct antonym of arcane.

Hence, the correct choice is **Option C: Incomprehensible**.

Final Answer: $\boxed{C}$

Quick Tip

Arcane = obscure, mysterious, difficult to understand. Always eliminate antonyms like "transparent" or "well known" to reach the correct answer.

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105. As per the article, India's position with respect to the talks is:

(A) Reduced taxes for agriculture and liberalisation for manufacturing sector

(B) Reduced taxes for agriculture and liberalisation for services sector

(C) Higher tariff for agriculture and liberalisation for manufacturing sector

(D) Higher tariff for agriculture and liberalisation for services sector

Correct Answer: (D) Higher tariff for agriculture and liberalisation for services sector

Solution:

The article highlights India's stand in the trade negotiations. India aimed to protect its **agriculture sector** by keeping **higher tariffs**, ensuring that local farmers are not undermined by cheap imports. At the same time, India advocated for **greater liberalisation in the services sector**, as it is one of the strongest areas of India's economy, particularly with IT and outsourcing services.

Step 1: Eliminate incorrect options.

- (A) and (B) mention reduced taxes for agriculture, which is not India's position. India wanted to maintain protection, not reduce it.

- (C) talks about higher tariff for agriculture (correct part) but wrongly links liberalisation with manufacturing.

Step 2: Confirm the correct option.

- (D) matches perfectly with India's stance: protection for agriculture (higher tariff) + liberalisation for services.

Thus, the correct answer is **(D)**.

D

Quick Tip

In trade-related comprehension questions, always match the country's **economic strengths and vulnerabilities** — India protects agriculture but promotes liberalisation in services, as this sector gives it a comparative advantage.

General knowledge

106. The Statue of Unity, built as a tribute to the first was inaugurated on Oct 31, 2018.

(A) Deputy Prime Minister of India

(B) Deputy Chief Minister of Gujarat

(C) President of India

(D) Vice President of India

Correct Answer: (A) Deputy Prime Minister of India

Solution:

The Statue of Unity is a 182-metre (597 ft) tall statue located near **Kevadiya**, on the Narmada River in Gujarat. It commemorates **Sardar Vallabhbhai Patel**, known as the *Iron Man of India*. Patel served as **independent India's first Deputy Prime Minister and Home Minister** and spearheaded the integration of 560+ princely states into the Indian Union. **Why option (A) fits:** the prompt says "tribute to the first . . . ," which points to the first *Deputy Prime Minister*. The unveiling date, **31 October 2018**, coincides with Patel's birth anniversary—another strong clue. **Eliminations:** (B) is a state post (and not "the first" of

India), (C) and (D) are Union constitutional posts but do not match the figure honoured by the monument. Hence, the statue is a tribute to **Sardar Patel, the first Deputy Prime Minister of India**.

Quick Tip

Link monuments to the **signature contribution** of the personality: Patel → integration of princely states; hence "first Deputy Prime Minister" is the tell.

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107. In August 2018, Intel was overtaken as the world's largest chipmaker, and the new leader made a major move into autonomous driving by acquiring Israeli visual sensor company Mobileye.

(A) Google

(B) Samsung

(C) AMD

(D) Qualcomm

Correct Answer: (B) Samsung

Solution:

Through 2016–2018 a **memory-chip supercycle** (DRAM & NAND) dramatically lifted revenues for **Samsung Electronics**, allowing it to **surpass Intel**—traditionally dominant in PC/server CPUs—to become the world's largest semiconductor company by sales. The stem also mentions the **Mobileye** acquisition (an Israeli ADAS/AV-vision firm). That deal (about $15B) was done by **Intel**, showing Intel's push into automotive vision. The clause is contextual; the direct question is *"Intel was overtaken by whom?"* **Eliminations:** Google is a software/services giant (not a chipmaker). AMD and Qualcomm are major semiconductor firms but did not overtake Intel in overall revenue in that window. **Samsung** did—thanks mainly to memory dominance.

Quick Tip

Separate **context** from the **target query**. Here, Mobileye explains Intel's strategy, but the ask is "Who overtook Intel?" ⇒ Samsung.

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108. In 2017, Facebook acquired the video editing technology company named:

(A) Fayteq

(B) BenQ

(C) Instagram

(D) Survival Vision

Correct Answer: (A) Fayteq

Solution:

Fayteq AG was a German computer-vision startup whose tech enabled *object-level edits* in video (adding/removing items, smart overlays)—useful for AR and creative tools. Facebook bought it in **2017** to strengthen video/AR authoring across its apps. **Eliminations:** (B) BenQ is a Taiwanese electronics brand (displays, projectors). (C) Instagram is indeed a Facebook acquisition, but from **2012**, not 2017, and it is a social platform, not a video-editing-tech startup. (D) Survival Vision does not match Facebook's 2017 M&A trail.

Quick Tip

For acquisition questions, check **year–fit–domain**: 2012–Instagram (social), 2014–WhatsApp (messaging), 2017–Fayteq (video editing/AR), 2014–Oculus (VR).

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109. In October 2018, the ex-director of Amazon joined as a Chief Technology and Product Officer (CTPO) for Chqbook.com, the Gurgaon-based financial technology startup. Who was he?

(A) Sachin Arora

(B) Prakash Malhotra

(C) Rohit Bansal

(D) Suresh Wadhwani

Correct Answer: (A) Sachin Arora

Solution:

Chqbook.com (a marketplace for small-business financial products) onboarded **Sachin Arora**—formerly a Director at Amazon—as **CTPO** in Oct 2018 to lead product & engineering. **Why the others don't fit:** (B) and (D) aren't associated with that announcement. (C) Rohit Bansal is known as co-founder of Snapdeal, not Chqbook's CTPO. The role and timing align uniquely with **Sachin Arora**.

Quick Tip

When multiple names look plausible, **match the person to the company/function & year**. Titles like CTPO and the startup's domain (fintech) help lock the right name.

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110. Recently, a section of the RBI Act came into spotlight amid the war between the Central Government and the Reserve Bank of India (RBI). The provision empowers the government to issue directions to the RBI. Which section is it?

(A) Section 8

(B) Section 7

(C) Section 9

(D) Section 10

Correct Answer: (B) Section 7

Solution:

Section 7 of the RBI Act, 1934 provides that the **Central Government**, after consultation with the RBI Governor, may issue directions to the Bank in matters of **public interest**. Historically, this section is *rarely invoked* because RBI's operational independence is prized;

the 2018 discourse brought it to the fore during policy disagreements (e.g., liquidity, NPA resolution, surplus transfer). **Eliminations:** (A) Section 8 primarily concerns the Central Board of the RBI; (C) and (D) deal with other administrative/functional aspects—neither is the "directions" clause. Therefore, the correct reference is **Section 7**.

Quick Tip

For statutory-GK, anchor on the **section's "keyword"**: Section 7 → "*Government directions in public interest*". That cue alone usually nails the answer.

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111. The Prime Minister of India, on September 23, 2018, rolled out the scheme touted as the world's largest healthcare scheme. The insurance scheme provides an annual health cover of ₹5 lakhs per family.

(A) Ayushman Bharat - Pradhan Mantri Ian Aarogya Yojana
(B) Ayushman Desh - Pradhan Mantri Ian Aarogya Yojana
(C) Ayushman jeevan - Pradhan Mantri Ian Aarogya Yojana
(D) Ayushman Parivar - Pradhan Mantri Ian Aarogya Yojana

Correct Answer: Ayushman Bharat - Pradhan Mantri Jan Arogya Yojana (PMJAY)

Solution:
On 23 September 2018, Prime Minister **Narendra Modi** launched the **Ayushman Bharat - Pradhan Mantri Jan Arogya Yojana (PMJAY)** in Ranchi, Jharkhand. This initiative is widely recognized as the world's largest government-funded healthcare program. It provides **annual health coverage of up to ₹5 lakhs per family**, targeting poor and vulnerable households. Beneficiaries can avail cashless treatment in both public and empanelled private hospitals. The scheme aims to reduce the financial burden of medical expenses, ensuring accessible and affordable healthcare for millions of Indians.

Quick Tip

Remember "₹5 lakhs per family" = Ayushman Bharat (PMJAY), India's flagship health insurance scheme.

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112. Recently, Tata Motor's first SUV built on Land Rover's D8 architecture was developed in collaboration with Jaguar Land Rover. It is called:

(A) Tata Harrier

(B) Tata Sierra

(C) Tata Hexa

(D) Tata Crux

Correct Answer: (A) Tata Harrier

Solution:

Tata Motors, in collaboration with its British subsidiary **Jaguar Land Rover**, developed the **Tata Harrier**, the first SUV based on the **Land Rover D8 architecture platform**. This platform is also known as the **OmegaArc (Optimal Modular Efficient Global Advanced Architecture)**. The Harrier was launched in **2018–19** and became one of Tata's flagship premium SUVs, competing in the mid-size SUV segment. Its design was based on Tata's **Impact Design 2.0 philosophy**, and it offered robust build quality, advanced terrain response features, and a strong diesel engine option. This development symbolized Tata's successful utilization of Jaguar Land Rover's expertise while retaining affordability for the Indian market.

Quick Tip

Link "**Harrier = Heritage + JLR**" $\rightarrow$ Remember Tata's first premium SUV on Land Rover D8 platform.

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113. In September 2018, ___ and ___ were all set to acquire Aditya Birla Group's Food and Grocery retail chain, even as an investment bank exited the consortium.

(A) Samara Capital, Amazon, Goldman Sachs

(B) Samara Capital, Alibabamazon, Barclays

(C) Soft Bank, Amazon, JP Morgan

(D) Softbank, Amazon, DeutscheBank

Correct Answer: (A) Samara Capital, Amazon, Goldman Sachs

Solution:

In September 2018, a consortium led by **Samara Capital** and **Amazon** was set to acquire the **More retail chain** from the **Aditya Birla Group**. Initially, the consortium also included **Goldman Sachs** as an investment partner. Later, Goldman Sachs reportedly pulled out, but the acquisition went ahead with Samara Capital and Amazon. The deal was significant because it strengthened Amazon's presence in India's fast-growing retail and grocery segment, directly competing with Walmart-Flipkart and Reliance Retail. This acquisition was part of Amazon's larger strategy to establish a strong offline presence in India while leveraging its existing e-commerce ecosystem.

Quick Tip

Think "**More = Amazon + Samara (with Goldman Sachs initially)**" $\rightarrow$ marks Amazon's offline retail expansion in India.

---

114. The world's first holographic screen phone has a holographic screen that produces 3-D visuals without needing special glasses.

(A) Hydrogen One

(B) Nitrogen One

(C) Carbon One

(D) Oxygen One

Correct Answer: (A) Hydrogen One

Solution:

In 2018, the U.S.-based company **RED Digital Cinema** launched the **Hydrogen One smartphone**. Its unique feature was the **holographic 4-View display**, which produced 3D visuals without requiring special glasses. This made it the world's first commercial holographic-display smartphone. Despite high anticipation, the device faced criticism for its bulky design and high cost, but it remains significant as a technological first in smartphone history.

Quick Tip

For "world's first holographic phone," always recall RED's **Hydrogen One**—link the "H" with "Holographic".

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115. Almost six months after Chief Economic Advisor Arvind Subramanian left the Finance Ministry, the government has recently appointed to the post:

(A) Krishnamurthy Subramanian
(B) Krishnan Subramanian
(C) Krishnakumar Subramanian
(D) Shaktikanta Das

Correct Answer: (A) Krishnamurthy Subramanian

Solution:

The position of **Chief Economic Advisor (CEA)** to the Government of India is a crucial role in advising the Finance Ministry on macroeconomic issues, policies, and reforms. After **Arvind Subramanian** resigned from the post in mid-2018 citing personal reasons, the role remained vacant for nearly six months. In **December 2018**, the government appointed **Krishnamurthy Subramanian**, a well-known academician and researcher in banking, corporate governance, and economic policy.

Krishnamurthy Subramanian was an Associate Professor at the **Indian School of Business (ISB), Hyderabad** and also served on important committees like the **Uday Kotak Committee on Corporate Governance**. His appointment was seen as a move to bring in fresh academic and practical perspectives into India's economic policymaking.
The other options listed are either incorrect variations of his name (B and C) or unrelated personalities (D: **Shaktikanta Das**, who around the same time was appointed as the **Governor of the Reserve Bank of India**).
Thus, the correct answer is **Krishnamurthy Subramanian**.

Chief Economic Advisor (2018) = Krishnamurthy Subramanian

Quick Tip

Remember: Arvind Subramanian (Resigned) $\rightarrow$ Krishnamurthy Subramanian (Appointed as CEA). Don't confuse with Shaktikanta Das, who became RBI Governor in the same period.

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116. Assembly Polls were held between November 2018 and December 2018 in which states?

(A) Madhya Pradesh, Rajasthan, Chhattisgarh, Mizoram and Telangana only
(B) Madhya Pradesh, Rajasthan, Chhattisgarh and Mizoram only
(C) Madhya Pradesh, Rajasthan, and Chhattisgarh only
(D) Madhya Pradesh, Rajasthan, Chhattisgarh and Telangana only

Correct Answer: (A) Madhya Pradesh, Rajasthan, Chhattisgarh, Mizoram and Telangana only

Solution:
The "2018 Assembly Elections cycle" was one of the largest before the 2019 General Elections. Polls were conducted in: - **Madhya Pradesh** – over 200 seats, Dec 2018.

- **Rajasthan** – 199 seats contested, Dec 2018.

- **Chhattisgarh** – 90 seats, in two phases (Nov 2018).

- **Mizoram** – Nov 2018.

- **Telangana** – Assembly dissolved early, elections held Dec 2018.

Thus, all 5 states (listed in option A) went to polls in the Nov–Dec 2018 window.

Quick Tip

When recalling election cycles, use mnemonic: "**3 Hindi belt + 2 others**" = MP, Rajasthan, Chhattisgarh + Mizoram, Telangana.

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117. The political party floated by actor-turned-politician Kamal Haasan is:

(A) Makkal Needhi Maiam

(B) Makkal Munnetra Maiam

(C) Makkal Munnetra Kazhagam

(D) Makkal Kazhagam

Correct Answer: (A) Makkal Needhi Maiam

Solution:

In February 2018, veteran Tamil actor **Kamal Haasan** launched his political party called **Makkal Needhi Maiam (MNM)** in Madurai, Tamil Nadu. The name translates to *"People's Justice Centre"*. The party aims to provide an alternative to the traditional dominance of DMK and AIADMK in Tamil Nadu politics, advocating transparency, good governance, and grassroots empowerment.

Quick Tip

MNM = Makkal Needhi Maiam $\rightarrow$ remember "Needhi = Justice" for Kamal Haasan's party.

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118. In June 2018, who was appointed MD and CEO of IDBI Bank in place of who took charge as Deputy Governor of Reserve Bank of India?

(A) B Sriram, Mahesh Kumar Jain

(B) R Raghuram, Vinnnet Kumar Jain

(C) D Shriram, Rahul Kumar Jain

(D) K Sridharan, Shyam Kumar Jain

Correct Answer: (A) B Sriram, Mahesh Kumar Jain

Solution:

In June 2018, **B Sriram**, then Managing Director at State Bank of India, was appointed as the **MD & CEO of IDBI Bank**. He replaced **Mahesh Kumar Jain**, who had been elevated as **Deputy Governor of the Reserve Bank of India**. This was a transitional appointment before IDBI's strategic restructuring involving LIC.

Quick Tip

Match the pair: "**B Sriram (new IDBI head) Mahesh Kumar Jain (to RBI)**."

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119. In October 2018, who received the Champions of the Earth Award, a top UN honour that recognizes contribution in the field of environment and environmental protection?

(A) Shri Narendra Modi

(B) Shri James Hansen

(C) Shri Bill McKibben

(D) Smt. Vandana Shiva

Correct Answer: (A) Shri Narendra Modi

Solution:

In October 2018, Prime Minister **Narendra Modi** was conferred the prestigious **UN Champions of the Earth Award**. He received it jointly with French President **Emmanuel**

Macron for their leadership in promoting the **International Solar Alliance (ISA)** and global environmental cooperation. The award is the highest environmental honour from the United Nations, recognizing exemplary action in policy leadership for sustainable development.

Quick Tip

"**Champions of the Earth 2018**" → Modi + Macron, for leadership in the **International Solar Alliance**.

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120. In September 2018, was appointed as the Vice Chairman of the University Grants Commission.

(A) Prof. Satish Chandra

(B) Prof. B. Ramachandra Rao

(C) Prof. Rais Ahmed

(D) Prof. Bhushan Patwardhan

Correct Answer: (D) Prof. Bhushan Patwardhan

Solution:

The University Grants Commission (UGC) is the apex regulatory body for higher education in India, responsible for maintaining standards in teaching, examination, and research. In September 2018, **Prof. Bhushan Patwardhan**, a noted academician and researcher in Ayurveda, integrative medicine, and health sciences, was appointed as the **Vice Chairman of UGC**.

He was recognized for his contributions to traditional knowledge systems, evidence-based medicine, and his role in blending modern science with India's ancient knowledge traditions. His appointment reflected the government's focus on both quality education and indigenous knowledge promotion.

The other options listed do not correspond to this position in 2018, making them incorrect.

Vice Chairman of UGC (2018) = Prof. Bhushan Patwardhan

Quick Tip

Always link appointments in education bodies (like UGC, AICTE, NCERT) with reforms in education policy, as such questions are frequently asked in exams.

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121. In December 2017, bought Foodpanda India from its German parent Delivery Hero in a stock deal pegged at about $30 million, entering a resurgent food-delivery market.

(A) Ola, Hero

(B) Swiggy, Siemens

(C) Zomato, BOSCH

(D) Uber, Volkswagen

Correct Answer: (A) Ola, Hero

Solution:

In December 2017, Indian cab-hailing giant **Ola** (backed by SoftBank) acquired the Indian operations of **Foodpanda** from its German parent company, **Delivery Hero**, in a deal worth approximately **$30 million**. This move was strategic for Ola, as it wanted to diversify into the growing **online food delivery** business to compete with strong players like Swiggy and Zomato.

Additionally, Ola pledged to invest **$200 million** into Foodpanda India to strengthen its operations and expand its market share. This acquisition was considered a major step in consolidating the Indian food delivery sector, which was experiencing intense competition and rapid growth.

The other combinations are factually incorrect as the companies listed (Siemens, BOSCH, Volkswagen) are unrelated to food delivery.

Ola acquired Foodpanda India in 2017

Quick Tip

Link corporate acquisitions with their strategic goals: Ola → ride-hailing + food delivery, Zomato/Swiggy → food delivery, Amazon → e-commerce + grocery.

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122. In October 2018, Dish TV—India's first and largest direct-to-home (DTH) company, signed up as its brand ambassador to woo the younger audience with its largest brand campaign.

(A) Ranveer Singh
(B) Shahrukh Khan
(C) Ayushmann Khurrana
(D) Tiger Shroff

Correct Answer: (A) Ranveer Singh

Solution:
In October 2018, **Dish TV**, India's first and largest DTH (Direct-to-Home) company, launched its biggest brand campaign aimed at attracting a younger audience. To connect with the youth, it signed popular Bollywood actor **Ranveer Singh** as its brand ambassador.
Ranveer Singh, known for his vibrant personality and strong youth connect, was considered the perfect fit to represent Dish TV's new campaign. The campaign emphasized entertainment variety and technological innovation in the DTH sector.
Other options like Shahrukh Khan, Ayushmann Khurrana, and Tiger Shroff were not associated with Dish TV at that time, making them incorrect.

$$\boxed{\text{Dish TV Brand Ambassador (2018) = Ranveer Singh}}$$

Quick Tip

Brand ambassador questions are frequent in exams—always remember associations of famous personalities with companies or campaigns.

123. Who is the person shown in the picture below who won the Ramon Magsaysay Award 2018?

(A) Sonam Wangchuk

(B) Tenzin Ragbay

(C) Rinzin Wangmo

(D) Namgutzbhutia Dorji

Correct Answer: (A) Sonam Wangchuk

Solution:

The person shown in the image is **Sonam Wangchuk**, a renowned Indian engineer, innovator, and education reformist from Ladakh. He was awarded the prestigious **Ramon Magsaysay Award in 2018** for his pioneering work in education reforms, sustainable development, and his innovations to solve real-life problems in the Himalayan region.

One of his most notable contributions is the creation of the **Ice Stupa Project**, which addresses water scarcity in Ladakh by storing winter water in conical ice structures that melt in summer, providing water for farming.

The Ramon Magsaysay Award is often regarded as Asia's Nobel Prize, given to individuals for integrity, courage, and selfless service.

The other names listed are unrelated and incorrect, making option (A) the right answer.

Ramon Magsaysay Award (2018) = Sonam Wangchuk

Quick Tip

Remember: Sonam Wangchuk → Ramon Magsaysay Award 2018 → Education Sustainable Development (Ice Stupa).

124. The Nobel Peace Prize 2018 was awarded jointly to two individuals for their efforts to end the use of sexual violence as a weapon of war and armed conflict. Who

were they?

(A) Denis Mukwege, Nadia Murad

(B) Denis Margo, Naida Moralis

(C) Denis Gurang, Nadia Posche

(D) Denis Levis, Naida Johnes

Correct Answer: (A) Denis Mukwege, Nadia Murad

Solution:

The **2018 Nobel Peace Prize** was jointly awarded to **Denis Mukwege** and **Nadia Murad**.

- **Denis Mukwege** is a Congolese gynecologist who has devoted his life to treating women affected by sexual violence in war-torn regions of the Democratic Republic of Congo. He is often referred to as "the man who repairs women" for his dedicated service.

- **Nadia Murad**, a Yazidi woman from Iraq, is a survivor of sexual violence perpetrated by ISIS. She later became an activist, advocating internationally for the rights of victims of sexual violence and bringing global attention to the use of sexual violence as a weapon of war.

Their joint recognition emphasized the global need to address sexual violence in conflict as a tool of oppression and warfare.

$$\boxed{\text{Nobel Peace Prize (2018)} = \text{Denis Mukwege and Nadia Murad}}$$

Quick Tip

Nobel Peace Prizes often highlight global humanitarian issues—link the awardees with the cause they championed. (2018 $\rightarrow$ Sexual Violence in Conflict).

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125. From the beginning of 2018 which of these sectors has been allowed for automatic hundred per cent foreign direct investment (FDI) in India?

(A) Multi Brand Retailing

(B) Defence Manufacturing

(C) Banking

(D) Single Brand Retailing

Correct Answer: (D) Single Brand Retailing

Solution:

Foreign Direct Investment (FDI) refers to investments made by foreign entities into business sectors of a country. The Government of India has progressively liberalized FDI norms to attract foreign capital and boost economic growth.

- As per the policy change in **January 2018**, the Government of India allowed **100% FDI under the automatic route in Single Brand Retail Trading (SBRT)**. - Earlier, only up to 49% FDI was permitted automatically, with anything beyond that requiring government approval. The 2018 reform simplified this and made the sector more attractive for global retailers.

Why not the other options? - **Multi Brand Retailing:** FDI is restricted here. Only 51% FDI is allowed and that too with government approval. - **Defence Manufacturing:** FDI up to 49% is allowed under the automatic route, but beyond 49% requires government approval, especially in sensitive areas. - **Banking:** In the private sector, FDI is allowed up to 74% (automatic + approval route), but not 100%.

Thus, the only correct answer is **Single Brand Retailing**, which witnessed the major reform in 2018.

$$\boxed{\text{100\% Automatic FDI (2018)} \rightarrow \text{Single Brand Retailing}}$$

Quick Tip

Remember the distinction: Single Brand Retail = 100% automatic FDI allowed (since 2018); Multi Brand Retail = restricted to 51% with government approval.

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126. The 2018 Asian Games were held in how many cities of Indonesia?

Solution:

The 2018 Asian Games were hosted by Indonesia. For the first time in the history of the Asian Games, the event was conducted in **two different cities simultaneously**: - **Jakarta** (the capital city of Indonesia) hosted the majority of the sports and opening/closing ceremonies.

- **Palembang** (the capital of South Sumatra province) hosted several sporting events as a co-host city.

This co-hosting arrangement was made to spread infrastructure pressure and to encourage regional participation in such large-scale international events.

2 cities: Jakarta and Palembang

Quick Tip

The 2018 Asian Games were the 18th edition and the first ever to be hosted in two cities.

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127. The Ministry of Agriculture and Farmer Welfare launched the Krishi Kalyan Abhiyan from the __th month of 2018 which could lead and advise farmers on the means to improve their farming techniques.

Solution:

The **Krishi Kalyan Abhiyan** was launched by the Ministry of Agriculture and Farmer Welfare in **June 2018** (6th month). The aim of this campaign was to aid farmers in 112 aspirational districts across India.

Key objectives included: - Distribution of soil health cards and mini kits of pulses and horticulture.

- Demonstrations of improved agricultural practices.

- Awareness on water conservation and balanced use of fertilizers.

The program was designed to uplift farmers by providing them with modern techniques and government support mechanisms.

6th month = June 2018

Quick Tip

June 2018 saw the launch of Krishi Kalyan Abhiyan, focusing on aspirational districts for agricultural upliftment.

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128. What was the rank of India in 2018 United Nation World Happiness Index Report?

Solution:

The **World Happiness Report 2018** is an annual publication of the United Nations Sustainable Development Solutions Network. The report ranks countries based on factors such as GDP per capita, social support, healthy life expectancy, freedom, generosity, and perception of corruption.

- In 2018, **India was ranked 133 out of 156 countries**, dropping significantly from previous years.

- The top position was held by **Finland**, while other Nordic countries like Norway, Denmark, and Iceland followed.

India's low ranking was attributed to social challenges, inequality, and governance issues despite strong GDP growth.

India's Rank = 133

Quick Tip

Remember: Finland topped the 2018 World Happiness Index, while India ranked low at 133.

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129. _____ was the number of seats won by the party who got majority in Chhattisgarh in recent 2018 Vidhan Sabha elections.

Solution:

In the **2018 Chhattisgarh Vidhan Sabha elections**, the state witnessed a major political shift: - The **Indian National Congress (INC)** secured a sweeping victory by winning **68 seats out of 90**.

- The incumbent **Bharatiya Janata Party (BJP)** won only 15 seats, marking a heavy loss after 15 years of rule.

This majority paved the way for **Bhupesh Baghel** of the Congress party to become the Chief Minister of Chhattisgarh.

68 seats won by Congress (INC)

Quick Tip

Congress won 68 out of 90 seats in Chhattisgarh 2018, ending BJP's 15-year rule.

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130. How many persons were awarded the Nobel Prize in Economic Sciences in 2018?

Solution:

The Nobel Prize in Economic Sciences (2018) was awarded to two eminent economists: - **William D. Nordhaus** (for integrating climate change into long-term macroeconomic analysis).

- **Paul M. Romer** (for integrating technological innovations into long-term macroeconomic analysis).

Both contributed significantly to understanding how climate change and innovation affect long-term economic growth.

2 recipients – William Nordhaus & Paul Romer

Quick Tip

Nobel Prize in Economics 2018 was shared by William Nordhaus and Paul Romer, both Americans.
