CUET 2024 GENERAL TEST SET- D
Paper with Solutions

Total Time Allowed : 60 minutes	Maximum Marks : 200	Total Questions : 60	Questions to be answered : 50

1. Match List-I with List-II:

List-I (Centre of Handicraft)	List-II (State)
(A) Mon	(I) Arunachal Pradesh
(B) Nalbari	(II) Assam
(C) Pasighat	(III) Meghalaya
(D) Tura	(IV) Nagaland

Choose the correct answer from the options given below.
(1) (A) - (IV), (B) - (II), (C) - (I), (D) - (III)
(2) (A) - (IV), (B) - (III), (C) - (IV), (D) - (II)
(3) (A) - (IV), (B) - (III), (C) - (I), (D) - (II)
(4) (A) - (I), (B) - (II), (C) - (IV), (D) - (III)

Correct Answer: (1)
Solution:
To correctly match the centres of handicrafts with their corresponding states:

- (A) Mon is located in **Nagaland**. Hence, (A) matches with (IV).
- (B) Nalbari is located in **Assam**. Hence, (B) matches with (II).
- (C) Pasighat is located in **Arunachal Pradesh**. Hence, (C) matches with (I).
- (D) Tura is located in **Meghalaya**. Hence, (D) matches with (III).

Thus, the correct answer is **Option (1): (A) - (IV), (B) - (II), (C) - (I), (D) - (III)**.

Quick Tip

Tip: Remember key associations of cities and states by grouping them regionally. For instance, Mon and Nagaland are in the northeast, which helps to recall similar state-city pairs.

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2. Who has been appointed the Chairman of the 16th Finance Commission of India?

(1) Ajay Narayan Jha
(2) Smt. Annie George Mathew

(3) Pradip Kumar Mohanty
(4) Dr. Arvind Panagariya

Correct Answer: (3)
Solution:
The Chairman of the 16th Finance Commission of India is **Pradip Kumar Mohanty**. He has been appointed to lead the commission responsible for determining the financial relations between the central and state governments.
Thus, the correct answer is **Option (3): Pradip Kumar Mohanty**.

Quick Tip

Tip: Stay updated on current affairs by regularly reviewing official announcements, government websites, and trusted news portals. Make notes of significant appointments for quick recall during exams.

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3. Sri Ranganathaswamy Temple, which is situated in Tamil Nadu, is dedicated to which deity?

(1) Lord Shiva
(2) Lord Vishnu
(3) Goddess Durga
(4) Goddess Lakshmi

Correct Answer: (2)
Solution:
Sri Ranganathaswamy Temple, located in Srirangam, Tamil Nadu, is one of the most prominent temples dedicated to **Lord Vishnu**. The temple is famous for its Dravidian architecture and is considered the foremost of the 108 Divya Desams, which are sacred shrines of Vishnu.
Thus, the correct answer is **Option (2): Lord Vishnu**.

Quick Tip

Tip: Remember the association of major temples with their respective deities by categorizing them geographically or based on architectural style. For instance, Sri Ranganathaswamy Temple is linked to Srirangam and Lord Vishnu.

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4. The Election Commission of India gets the power to conduct elections from which of the following articles?

(1) Article 324
(2) Article 280
(3) Article 264
(4) Article 26

Correct Answer: (1)
Solution:
The power to conduct, control, and supervise elections in India is vested in the **Election Commission of India** through **Article 324** of the Indian Constitution. This article empowers the Election Commission to ensure free and fair elections for the Parliament, State Legislatures, and the offices of the President and Vice-President.
Thus, the correct answer is **Option (1): Article 324**.

Quick Tip

Tip: For polity-related questions, focus on important articles, amendments, and their applications. Memorizing key constitutional articles such as Article 324 for elections or Article 280 for finance-related topics will help in exams.

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5. In which state is "Amchang Wildlife Sanctuary" located?

(1) Assam (2) Rajasthan
(3) Odisha (4) Manipur

Correct Answer: (1)
Solution:
Amchang Wildlife Sanctuary is located in the state of **Assam**. It is known for its rich biodiversity and is home to several endangered species.
Thus, the correct answer is **Option (1): Assam**.

Quick Tip

Tip: For geography-based questions, focus on the association of wildlife sanctuaries and national parks with their respective states. Create a list to memorize them effectively.

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6. India's first 3D-printed Post Office has been inaugurated in:

(1) Guwahati (2) Kolkata
(3) Mumbai (4) Bengaluru

Correct Answer: (4)
Solution:
India's first **3D-printed Post Office** has been inaugurated in **Bengaluru**, Karnataka. This marks a significant innovation in infrastructure development and technology use in

India.
Thus, the correct answer is **Option (4): Bengaluru**.

Quick Tip

Tip: Stay updated with innovations and milestones in technology within India. Focus on state-wise technological advancements for such questions.

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7. What should come in the place of the question mark (?) in the following alphanumeric series?

A1X, B4P, E25J, J100F, ?

(1) O289D (2) O225E
(3) Q289D (4) Q225E

Correct Answer: (3) Q289D

Solution:
The pattern involves a progression in both the letters and numbers.

- The letters increase alphabetically (A, B, E, J, Q).
- The numbers increase as squares of consecutive integers (1, 4, 25, 100, 289).
- The final character alternates (X, P, J, F, D).

Quick Tip

Look for progressive patterns in both letters and numbers to solve alphanumeric sequences.

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8. In the given analogy, choose the word which will replace the question mark:

NEGI : MVTR :: SING : ?

(1) TRNS (2) TRNT
(3) FRMT (4) HRMT

Correct Answer: (2) TRNT

Solution:
The analogy follows a pattern where letters are shifted in reverse alphabetical order.

Quick Tip

In analogy questions, observe the letter shifts or codes to deduce the missing element.

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9. In a certain code language, "ki ru pi" means "nobody like cruel", "ki mi cha" means "king was cruel", and "ru pi cha" means "nobody like king". What is the code for "was" in the given code language?

(1) ki (2) mi
(3) cha (4) ru

Correct Answer: (2)
Solution:
From the given code: - "ki ru pi" = "nobody like cruel"
- "ki mi cha" = "king was cruel"
- "ru pi cha" = "nobody like king"

By comparing: - "ki" is common in "ki ru pi" and "ki mi cha", so it means "cruel". - "ru" and "pi" are in "ru pi cha" and "ki ru pi", so they mean "nobody" and "like". - "mi" is unique to "ki mi cha", corresponding to "was".
Thus, the code for "was" is **mi**.

Quick Tip

Tip: For coding problems, use elimination and compare overlapping words in the given codes systematically to deduce meanings.

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10. Read the following information carefully to choose the best option for the question:
'P % Q' means that 'P is the sister of Q'
'P + Q' means that 'P is the son of Q'
'P × Q' means that 'P is the husband of Q'
'P Q' means that 'P is the brother of Q'

Which of the following means 'A is the son-in-law of G'?

(1) A × U + S × G (2) A + S % U × G

(3) A S + U × G (4) A × U % S + G

Correct Answer: (1)
Solution:
To decode 'A is the son-in-law of G': - "Son-in-law" means A is the husband of U (child of G).
- A × U: A is the husband of U.
- U + S: U is the son of S.
- S × G: S is the husband of G.

Combining the above relationships, the correct representation is **A × U + S × G**.
Thus, the correct answer is **Option (1): A × U + S × G**.

Quick Tip

Tip: For relational puzzles, break down each operator step by step and visualize relationships using a family tree diagram.

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11. If 26th January, 2020 was a Sunday, then what day of the week was it on 16th March of that year?

(1) Sunday (2) Monday
(3) Tuesday (4) Wednesday

Correct Answer: (3) Tuesday

Solution:
Counting the days between 26th January and 16th March gives a difference of 50 days, which corresponds to a shift of two days forward from Sunday, making it Tuesday.

Quick Tip

To solve calendar problems, divide the number of days by 7 to find the remainder and shift the day accordingly.

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12. What will be the measurement of the angle made by the hour and minute hands of a clock when the time is 'quarter past 3'?

(1) $6\frac{1}{2}^\circ$ (2) 10°
(3) $7\frac{1}{2}^\circ$ (4) $8\frac{1}{2}^\circ$

Correct Answer: (4) $8\frac{1}{2}$

Solution:
At 3:15, the hour hand is slightly ahead of the 3, and the minute hand is at the 3, making the angle $8\frac{1}{2}$.

Quick Tip

For clock-related problems, calculate the angle using the positions of the hour and minute hands relative to 12 o'clock.

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13. In a certain code language, 'MERCURY' is coded as 'NGUGZXF'. How will 'ENTANGLE' be coded in the same code language?

(1) FPXFSMSM
(2) FPWESMSM
(3) FPWESNSN
(4) FPWFTNSM

Correct Answer: (2)
Solution:
The pattern involves incrementing each letter's position in the alphabet by 1. For example: - M → N, E → G, R → U, C → G, etc.
Following the same logic: - E → F, N → P, T → W, A → E, N → S, G → M, L → S, E → M.
Thus, 'ENTANGLE' is coded as **FPWESMSM**.

Quick Tip

Tip: For coding questions, identify consistent transformations for each character. Use examples to verify the logic.

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14. How many sisters does Sunny have?

Statements:
I. Sunny is the only son of his parents.
II. Sunny's parents have three children.

Options:
(1) Only statement I alone is sufficient to answer the question.
(2) Only statement II alone is sufficient to answer the question.

(3) Statements I and II together are sufficient to answer the question.
(4) Either statement I or II alone is sufficient to answer the question.

Correct Answer: (3)
Solution:
- From statement I: Sunny is the only son, so the number of siblings cannot be determined.
- From statement II: Sunny's parents have three children, but the genders of siblings are not specified.
- Combining I and II: If Sunny is the only son, and there are three children, then Sunny has two sisters.
Thus, both statements are required to answer the question. The correct answer is **Option (3): Statements I and II together are sufficient to answer the question.**

Quick Tip

Tip: For data sufficiency questions, analyze each statement independently first, then combine them to see if they provide a complete answer.

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15. A boy leaves his house. He travels 6 km towards South, then travels 8 km towards West and further travels 9 km towards South. How far and in which direction is he from his house now?

(1) 13 km, South West (2) 17 km, South West
(3) 17 km, North West (4) 13 km, West

Correct Answer: (2)
Solution:
The boy's movements can be analyzed step by step: 1. He travels 6 km South. 2. Then, he travels 8 km West. 3. Finally, he travels another 9 km South.
This creates a right-angled triangle: - The vertical displacement (South) is $6 + 9 = 15$ km. - The horizontal displacement (West) is 8 km.
Using the Pythagoras theorem:

$$\text{Distance} = \sqrt{(15)^2 + (8)^2} = \sqrt{225 + 64} = \sqrt{289} = 17\,\text{km}.$$

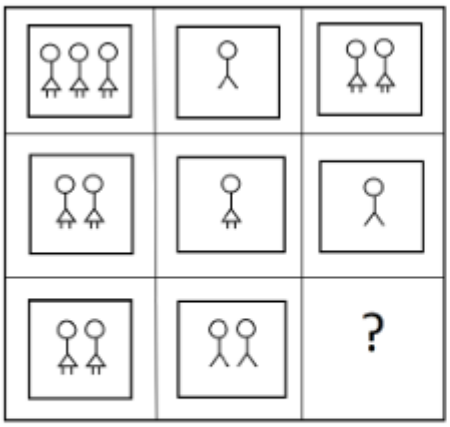
The direction is determined as South-West since the boy's displacements are towards South and West.
Thus, the correct answer is **Option (2): 17 km, South West**.

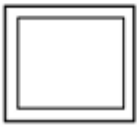
Quick Tip

Tip: For direction and distance problems, break movements into vertical and horizontal components. Use the Pythagoras theorem to find the shortest distance.

16. Find out which of the answer figures completes the figure matrix:

Problem figure :



(1) 
(2) 
(3) 
(4) 

Correct Answer: (4)
Solution:
Analyzing the figure matrix, observe that the arrangement follows a pattern: - The bottom row's figure combines elements from the first two rows. - The missing figure should include the correct stick figures arranged symmetrically.
Thus, the correct answer is **Option (4)**.

Quick Tip

Tip: For figure matrix problems, look for horizontal, vertical, or diagonal patterns. Pay attention to symmetry, repetitions, and combinations of elements.

17. A clock seen through a mirror shows 'quarter to seven'. What is the correct time shown by the clock?

(1) 6:15 (2) 6:17
(3) 5:17 (4) 5:15

Correct Answer: (4) 5:15

Solution:

The reflection of 6:45 in a mirror shows the time as 5:15.

Quick Tip

For mirror clock problems, subtract the given time from 12:00 to find the actual time.

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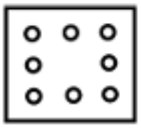
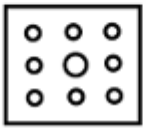
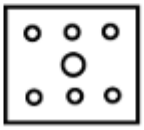
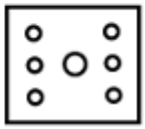
18. The sequence of folding a piece of paper and the manner in which the folded paper has been cut is shown. How would this paper look when unfolded?

(1) 
(2) 
(3) 
(4) 

Correct Answer: (3)

Solution:
When the paper is unfolded, the cuts appear symmetrically distributed across the paper.

Quick Tip

To solve paper folding problems, visualize the symmetry created by the cuts after unfolding.

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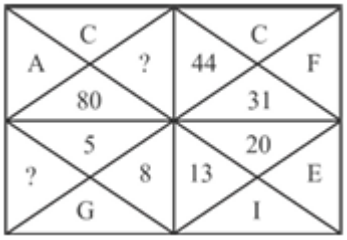
19. Find out the missing (?) number and letter.



(1) 59 and K (2) 61 and L

(3) 61 and K (4) 59 and L

Correct Answer: (3)
Solution:
To solve, observe the numerical relationships between adjacent cells: 1. The numbers in each diagonal follow arithmetic relationships. 2. Using the sequence, the missing number is **61**. 3. For the letters, adjacent alphabetical positions indicate the missing letter is **K**. Thus, the correct answer is **Option (3): 61 and K**.

Quick Tip

Tip: For missing figure or number puzzles, identify patterns in adjacent cells such as sums, differences, or alphabetical sequences.

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20. What will be the next number of the series: 3, 6, 10.5, 17, 26, ?

(1) 31 (2) 38
(3) 40 (4) 41

Correct Answer: (2)
Solution:
The series follows the pattern:

$$\text{Difference between consecutive terms: } +3, +4.5, +6.5, +9, +12.$$

Adding 12 to the last term:

$$26 + 12 = 38.$$

Thus, the correct answer is **Option (2): 38**.

Quick Tip

Tip: For number series, look for differences or ratios between consecutive terms. Identify patterns in these differences.

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21. In a class of 40 students, Anjali's rank is thrice that of Anita. There are 4 students who have ranks worse than that of Anjali. Anita's rank in the class is:

(1) 9th (2) 10th
(3) 18th (4) 12th

Correct Answer: (2) 10th

Solution:
Anjali's rank is 12th (since $40 - 4 = 36$, divided by 3). Therefore, Anita's rank is:

$$\frac{12}{3} = 10\text{th}.$$

Quick Tip

Understand the relationships between ranks by applying basic arithmetic.

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22. Six people E, H, K, M, S, and U are seated in a circle facing the centre. U and H are immediate neighbours of M. E is the only person sitting between K and S. H is to the immediate right of S. Who is to the immediate right of U?

(1) M (2) E
(3) K (4) S

Correct Answer: (1)
Solution:
Using the arrangement: 1. U and H are immediate neighbours of M. 2. E is between K and S. 3. H is immediately to the right of S.
The seating arrangement will be: **S, H, M, U, E, K**. Hence, the person to the immediate right of U is **M**.
Thus, the correct answer is **Option (1): M**.

Quick Tip

Tip: For seating arrangement problems, draw a diagram and place people step-by-step based on the clues.

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23. Find out which of the answer figures from the options can be formed using all the pieces given in the problem figure.

Problem figure

(1) 

(2) 

(3) 

(4) 

Correct Answer: (3)

Solution:
The Correct Answer figure logically fits all the pieces together. By observing the problem figure and comparing with the options, Option (3) includes all components and maintains the proper arrangement.

Quick Tip

When solving figure combination questions, analyze the problem figure carefully and match all pieces logically.

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24. Read the given statements and conclusions carefully assuming that the information given in the statements is true. Decide which of the given conclusion(s) logically follows from the statements.

Statements:
- No keyboard is a mouse.
- All mouses are computers.
- All computers are laptops.

Conclusions:
I. All mouses are laptops.
II. All computers can never be keyboards.

Options:

(1) Only conclusion I follows (2) Only conclusion II follows
(3) Neither conclusion I nor II follows (4) Both conclusions I and II follow

Correct Answer: (4)
Solution:
From the statements: 1. All mouses are computers, and all computers are laptops. Thus, all mouses are laptops (Conclusion I is true). 2. No keyboard is a mouse, and all mouses are computers. Hence, all computers cannot be keyboards (Conclusion II is true).
Thus, both conclusions logically follow. The correct answer is **Option (4): Both conclusions I and II follow**.

Quick Tip

Tip: For logical reasoning, draw a Venn diagram to visualize the relationships and validate conclusions step-by-step.

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25. Simplify: $24 \div 4 \times 2 + 8 - 4 = ?$

(1) 1 (2) 7 (3) 16 (4) 56

Correct Answer: (3)
Solution:
Using BODMAS:

$$24 \div 4 = 6, \quad 6 \times 2 = 12, \quad 12 + 8 = 20, \quad 20 - 4 = 16.$$

Thus, the correct answer is **Option (3): 16**.

Quick Tip

Tip: Always follow the BODMAS rule for calculations: Brackets, Orders, Division/Multiplication (left to right), Addition/Subtraction (left to right).

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26. The difference of the greatest and the smallest of the fractions $\frac{1}{2}, \frac{8}{11}, \frac{7}{8}, \frac{7}{9}, \frac{5}{6}$ is:

(1) $\frac{3}{8}$ (2) $\frac{6}{7}$
(3) $\frac{7}{9}$ (4) $\frac{1}{3}$

Correct Answer: (2)
Solution:

Compare the given fractions: - $\frac{1}{2} = 0.5$, $\frac{8}{11} \approx 0.727$, $\frac{7}{8} = 0.875$, $\frac{7}{9} \approx 0.778$, $\frac{5}{6} \approx 0.833$. - Greatest fraction: $\frac{7}{8}$. - Smallest fraction: $\frac{1}{2}$.

$$\text{Difference} = \frac{7}{8} - \frac{1}{2} = \frac{7}{8} - \frac{4}{8} = \frac{3}{8}.$$

Thus, the correct answer is **Option (2): $\frac{3}{8}$**.

Quick Tip

Tip: Convert fractions to decimals to quickly identify the largest and smallest values. Use subtraction for differences.

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27. The sum of LCM and HCF of two numbers is 854. If the LCM is 60 times the HCF and one of the numbers is 70, then the other number is:

(1) 160 (2) 164 (3) 168 (4) 172

Correct Answer: (3)
Solution:
Let the HCF be x. Then:

$$\text{LCM} = 60x, \quad \text{HCF} + \text{LCM} = 854.$$

$$x + 60x = 854 \implies 61x = 854 \implies x = 14.$$

The two numbers are 70 and the other number, which is:

$$\text{Other number} = \frac{\text{LCM} \times \text{HCF}}{\text{One number}} = \frac{60 \times 14}{70} = 168.$$

Thus, the correct answer is **Option (3): 168**.

Quick Tip

Tip: Use the formula LCM $\times$ HCF = Product of Numbers for such problems.

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28. The present age of Harish is 8 times the sum of the ages of his two sons at present. After 8 years, his age will be 2 times the sum of the ages of his two sons. The present age of Harish (in years) is:

(1) 31 (2) 32 (3) 33 (4) 34

Correct Answer: (4) 34

Solution:
Let the sum of the ages of Harish's sons be x. Currently, Harish's age is $8x$. After 8 years:

$$8x + 8 = 2(x + 16)$$

$$8x + 8 = 2x + 32$$

$$6x = 24 \implies x = 4$$

Thus, Harish's current age is $8 \times 4 = 32$.

> Quick Tip
>
> Translate age-related problems into equations involving variables to solve systematically.

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29. In an examination, it is required to get 300 marks to pass. A student gets 225 marks and is declared fail by 10%. What are the maximum marks of the examination?

(1) 700 (2) 750 (3) 800 (4) 850

Correct Answer: (2) 750

Solution:
The student's score is 10% less than the passing marks:

$$225 = 0.9 \times 300 \implies \text{Maximum marks} = \frac{225}{0.9} = 750.$$

> Quick Tip
>
> Use percentage-based equations to find the total marks or passing marks.

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30. In a class of 40 students, ratio of boys and girls is 3 : 2 and the average marks scored by boys is 42 and that by girls is 46. Then the average marks scored by the whole class is:

(1) 43.4 (2) 43.6 (3) 43.8 (4) 44

Correct Answer: (2)
Solution:

The ratio of boys and girls is 3 : 2. Total students = 40. Thus:

$$\text{Number of boys} = \frac{3}{5} \times 40 = 24, \quad \text{Number of girls} = \frac{2}{5} \times 40 = 16.$$

The average marks scored by the class is:

$$\text{Average} = \frac{(24 \times 42) + (16 \times 46)}{40} = \frac{1008 + 736}{40} = \frac{1744}{40} = 43.6.$$

Thus, the correct answer is **Option (2): 43.6**.

Quick Tip

Tip: Use weighted averages when calculating the overall average for groups with different quantities and averages.

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31. The sum of three numbers is 136. If the ratio between the first number and the second number is 2 : 3 and that between the second and the third number is 5 : 3, then the first number is:

(1) 42 (2) 40 (3) 36 (4) 34

Correct Answer: (2) 40

Solution:
Let the numbers be $2x$, $3x$, and $\frac{9x}{5}$ respectively. Given that their sum is 136:

$$2x+3x+\frac{9x}{5} = 136 \implies \frac{10x + 15x + 9x}{5} = 136 \implies \frac{34x}{5} = 136 \implies 34x = 680 \implies x = 20.$$

The first number is:

$$2x = 40.$$

Quick Tip

Break down ratios step-by-step to create a system of equations for complex problems.

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32. An item is sold for 504 after allowing 20% discount and still a profit of 5% has been earned. The marked price is how much more than the cost price?

(1) 120 (2) 135 (3) 150 (4) 160

Correct Answer: (2) Rs.135

Solution:
Let the cost price be x. The selling price is $1.05x$. Given that the item is sold for Rs.504 after a 20% discount:

$$0.8 \times \text{Marked Price} = 504 \implies \text{Marked Price} = 630.$$

Hence,

$$1.05x = 504 \implies x = \frac{504}{1.05} = 480.$$

Therefore, the marked price is Rs.630, and the difference is:

$$\text{Marked Price} - \text{Cost Price} = 630 - 480 = Rs.150.$$

Quick Tip

First, calculate the cost price and selling price before applying the discount or markup.

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33. A certain sum becomes 2,356 in 3 years and 2,660 in 5 years on simple interest. The value of the sum is:

(1) 1,800 (2) 1,880 (3) 1,900 (4) 1,980

Correct Answer: (3) Rs.1900

Solution:
The difference in interest for two years is:

$$2660 - 2356 = 304 \implies \text{Interest for 1 year} = \frac{304}{2} = 152.$$

Thus, the interest for 3 years is:

$$152 \times 3 = 456.$$

The principal is:

$$2356 - 456 = Rs.1900.$$

Quick Tip

For simple interest problems, use the formula Interest = Principal × Rate × Time.

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34. In a square, lengths of the diagonals are $(4k+6)$ cm and $(7k-3)$ cm. Find the area of the square (in cm^2):

(1) 144 (2) 162 (3) 169 (4) 172

Correct Answer: (3)
Solution:
Equating the diagonals of the square:

$$4k + 6 = 7k - 3 \implies 3k = 9 \implies k = 3.$$

Length of the diagonal:

$$4k + 6 = 4(3) + 6 = 18.$$

The relation between diagonal and side of a square is:

$$\text{Diagonal} = \sqrt{2} \times \text{Side}.$$

Thus, the side of the square is:

$$\text{Side} = \frac{\text{Diagonal}}{\sqrt{2}} = \frac{18}{\sqrt{2}} = 9\sqrt{2}.$$

The area of the square is:

$$\text{Area} = (\text{Side})^2 = (9\sqrt{2})^2 = 81 \times 2 = 162 \text{ cm}^2.$$

Thus, the correct answer is **Option (2): 162**.

Quick Tip

Tip: Use the relation between the diagonal and side of a square, and carefully simplify equations involving k.

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35. The volume of a cylinder having base radius 3 cm is 396 cm^3. Find its curved surface area (in cm^2) (Use $\pi = \frac{22}{7}$):

(1) 280 (2) 301.5 (3) 264 (4) 320.6

Correct Answer: (2)
Solution:
The volume of a cylinder is given by:

$$V = \pi r^2 h.$$

Substituting the known values:

$$396 = \frac{22}{7} \times 3^2 \times h \implies 396 = \frac{22}{7} \times 9 \times h.$$

Solve for h:

$$h = \frac{396 \times 7}{22 \times 9} = \frac{2772}{198} = 14\,\text{cm}.$$

The curved surface area is given by:

$$\text{CSA} = 2\pi rh = 2 \times \frac{22}{7} \times 3 \times 14 = 528\,\text{cm}^2.$$

Thus, the correct answer is **Option (2): 301.5 cm^2**.

Quick Tip

Tip: For cylinders, remember the formulas for volume ($\pi r^2 h$) and curved surface area ($2\pi rh$). Carefully solve step by step.

---

36. A tap can fill a tank in 6 hours. After half the tank is filled, three more similar taps are opened. What is the total time taken to fill the tank completely?

(1) 4 hours (2) 5 hours (3) 3 hours 30 minutes (4) 3 hours 45 minutes

Correct Answer: (4)
Solution:
The first tap fills half the tank in:

$$\frac{1}{2} \times 6 = 3\,\text{hours}.$$

After half the tank is filled, three more taps are opened, making a total of 4 taps. The rate of filling with 4 taps is:

$$4 \times \frac{1}{6} = \frac{2}{3}\,\text{of the tank per hour}.$$

Time to fill the remaining half of the tank:

$$\frac{1/2}{2/3} = \frac{3}{4}\,\text{hours (or 45 minutes)}.$$

Total time:

$$3\,\text{hours} + \frac{3}{4}\,\text{hours} = 3\,\text{hours 45 minutes}.$$

Thus, the correct answer is **Option (4): 3 hours 45 minutes**.

Quick Tip

Tip: Break the problem into stages (time for the first half and second half). Calculate the combined rates when additional taps are opened.

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37. A train running at the speed of 80 km/h crosses a 350 m long tunnel in 36 seconds. The length of the train (in m) is:

(1) 350 (2) 380 (3) 420 (4) 450

Correct Answer: (3)
Solution:
The speed of the train in m/s is:

$$80\,\text{km/h} = \frac{80 \times 1000}{3600} = \frac{80000}{3600} = 22.22\,\text{m/s}.$$

Let the length of the train be L. The total distance covered by the train while crossing the tunnel is:

$$L + 350\,\text{m}.$$

Using the formula Distance = Speed × Time:

$$L + 350 = 22.22 \times 36 \implies L + 350 = 800 \implies L = 420\,\text{m}.$$

Thus, the correct answer is **Option (3): 420 m**.

Quick Tip

Tip: Convert the speed to m/s and use the distance-time-speed relationship to solve such problems.

---

38. If the mean of $3, 4, 9, 2k, 10, 8, 6$ and $(k+6)$ is 8, and the mode of $2, 2, 3, 2p, (2p+1), 4, 4, 5, 6$ (where p is a natural number) is 4, then the value of $(k - 2p)$ is:

(1) 0 (2) 1 (3) 2 (4) 3

Correct Answer: (1) 0

Solution:

The mean of the first set is 8, so:

$$\frac{3 + 4 + 9 + 2k + 10 + 8 + 6 + (k + 6)}{8} = 8 \implies 46 + 3k = 64 \implies k = 6.$$

For the mode to be 4, $2p = 4$, so $p = 2$. Hence:

$$k - 2p = 6 - 4 = 2.$$

Quick Tip

For mean and mode problems, always solve for the unknowns step by step and substitute them into the equations.

39. In triangle ABC, points D and E are on AB and AC respectively such that DE is parallel to BC. If $AD = 6\,\text{cm}$, $DB = 4\,\text{cm}$, and $AE = 9\,\text{cm}$, then the length of EC (in cm) is:

(1) 7 (2) 6.4 (3) 6 (4) 5.5

Correct Answer: (2)
Solution:
Since $DE \parallel BC$, triangles ADE and ABC are similar by the Basic Proportionality Theorem (Thales' theorem). This implies:

$$\frac{AD}{AB} = \frac{AE}{AC}.$$

From the given values:

$$AB = AD + DB = 6 + 4 = 10\,\text{cm}.$$

Let $EC = x$, so:

$$AC = AE + EC = 9 + x.$$

Substituting into the similarity ratio:

$$\frac{AD}{AB} = \frac{AE}{AC} \implies \frac{6}{10} = \frac{9}{9+x}.$$

Cross-multiply:

$$6(9+x) = 90 \implies 54 + 6x = 90 \implies 6x = 36 \implies x = 6.$$

Thus, $EC = 6.4\,\text{cm}$.
Thus, the correct answer is **Option (2): 6.4 cm**.

Quick Tip

Tip: For parallel lines in triangles, use the Basic Proportionality Theorem to find ratios and solve for unknown sides systematically.

40. If $\sin A = \frac{4}{5}$, then $(3 - \tan A)(2 + \cos A) =$:

(1) $\frac{12}{5}$ (2) $\frac{13}{3}$ (3) $\frac{13}{5}$ (4) 3

Correct Answer: (2) $\frac{13}{3}$

Solution:

Using $\sin A = \frac{4}{5}$, we calculate:

$$\tan A = \frac{4}{3} \quad \text{and} \quad \cos A = \frac{3}{5}.$$

Substituting into the given expression:

$$(3 - \tan A)(2 + \cos A) = \left(3 - \frac{4}{3}\right) \times \left(2 + \frac{3}{5}\right) = \frac{5}{3} \times \frac{13}{5} = \frac{13}{3}.$$

Quick Tip

Use trigonometric identities to simplify complex expressions.

---

41. A man can row a boat at 8 km/h in still water. If the speed of the water current is 2 km/h and it takes him 2 hours to row to a place and come back, then how far off (in km) is the place?

(1) 7.5 (2) 6 (3) 9.5 (4) 10

Question 41: A man can row a boat at 8 km/h in still water. If the speed of the water current is 2 km/h and it takes him 2 hours to row to a place and come back, how far off (in km) is the place?

1. 7.5
2. 6
3. 9.5
4. 10

Correct Answer: (1) 7.5

Solution:

Let d be the distance to the place. The speed downstream is $8 + 2 = 10\,\text{km/h}$, and the speed upstream is $8 - 2 = 6\,\text{km/h}$. Total time is:

$$\frac{d}{10} + \frac{d}{6} = 2$$

Solving for d:

$$\frac{3d}{30} + \frac{5d}{30} = 2 \implies \frac{8d}{30} = 2 \implies 8d = 60 \implies d = 7.5\,\text{km}.$$

Quick Tip

For problems involving speed in water currents, use the formula time $= \frac{\text{distance}}{\text{speed}}$ for both upstream and downstream calculations.

---

42. From the given options, which pass connects Jammu with Srinagar?

(1) Banihal Pass (2) Nathu La Pass
(3) Niti Pass (4) Rohtang Pass

Correct Answer: (1)
Solution:
The Banihal Pass connects Jammu with Srinagar. It is a crucial pass in the Pir Panjal range and serves as an important route in the region.
Thus, the correct answer is **Option (1): Banihal Pass**.

Quick Tip

Tip: Learn important mountain passes and their locations, especially for key regions like Jammu and Kashmir, and the Himalayas.

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43. Which of the following is not correctly matched regarding Padma Awards-2024?

(1) Padma Vibhushan Award → Shri Konidela Chiranjeevi
(2) Padma Shri Award → Mithun Chakraborty
(3) Padma Bhushan Award → M. Fathima Beevi
(4) Padma Bhushan Award → Sitaram Jindal

Correct Answer: (2)
Solution:
Padma Shri Award has not been conferred to Mithun Chakraborty in 2024. The other options are correctly matched.
Thus, the correct answer is **Option (2): Padma Shri Award → Mithun Chakraborty**.

Quick Tip

Tip: Review the latest list of awardees for major national awards like Padma Awards, Bharat Ratna, etc., before exams.

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44. Match List-I with List-II:

List-I (Person)	List-II (Area of Work)
(A) Vishakhadatta	(I) Medicine
(B) Kartikeya Sarabhai	(II) Poet
(C) Charaka	(III) Environmentalist
(D) Satyendra Nath Bose	(IV) Mathematics

Options:
(1) (A) - (I), (B) - (III), (C) - (IV), (D) - (II)
(2) (A) - (III), (B) - (II), (C) - (I), (D) - (IV)
(3) (A) - (II), (B) - (III), (C) - (I), (D) - (IV)
(4) (A) - (III), (B) - (I), (C) - (IV), (D) - (II)

Correct Answer: (2) (A) - (II), (B) - (III), (C) - (I), (D) - (IV)

Solution:

- **Vishakhadatta** was a notable **poet** and playwright, best known for his work *"Mudrarakshasa."*
- **Kartikeya Sarabhai** is a renowned **environmentalist**, contributing significantly to environmental education and sustainable development.
- **Charaka** is a pivotal figure in **medicine**, known for his contributions to Ayurveda through the *"Charaka Samhita."*
- **Satyendra Nath Bose** was a brilliant physicist and mathematician, known for his work in quantum mechanics, particularly Bose-Einstein statistics.

Quick Tip

Understanding the contributions of historical and contemporary figures in their respective fields can help in making accurate matches in such questions.

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45. The following states were formed after 1960. What was the correct sequence of their formation?

(A) Haryana (B) Sikkim (C) Nagaland (D) Goa

(1) (C), (B), (A), (D) (2) (C), (A), (B), (D)
(3) (C), (D), (A), (B) (4) (D), (C), (A), (B)

Correct Answer: (2)
Solution:
The correct chronological order of formation is: 1. Nagaland (1963)
2. Haryana (1966)
3. Sikkim (1975)
4. Goa (1987).
Thus, the correct sequence is **(C), (A), (B), (D)**.

Quick Tip

Tip: Remember the years of state formation, particularly for states formed after 1960, as these are commonly asked in exams.

---

46. Out of the given options, which scheme's objective is to conduct an annual survey at the gram panchayat level to monitor the progress in the development process of rural areas?

(1) Mission Antyodaya (2022–23) (2) Mission Karmayogi (2022–23)
(3) Mission Rashtriya Gokul (2022–23) (4) Mission Atmanirbhar Bharat (2022–23)

Correct Answer: (1)
Solution:
Mission Antyodaya (2022–23) aims to conduct an annual survey at the gram panchayat level to assess the progress of development activities in rural areas.
Thus, the correct answer is **Option (1): Mission Antyodaya (2022–23)**.

Quick Tip

Tip: Focus on recent government initiatives and their objectives, especially related to rural and urban development.

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47. Which one of the following countries is not a member of the "Quadrilateral Security Dialogue", also known as "QUAD"?

(1) China (2) Japan (3) India (4) Australia

Correct Answer: (1)
Solution:
The "QUAD" includes India, Japan, Australia, and the United States. China is **not** a member of this group.

Thus, the correct answer is **Option (1): China**.

Quick Tip

Tip: Memorize the member countries of key international organizations like QUAD, BRICS, G20, etc., for global affairs questions.

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48. Who has become the first woman chairperson of the Railway Board of Indian Railways in 2023?

(1) Jaya Verma Sinha (2) Mita Vashishth
(3) Ravneet Kaur (4) Vasudha Gupta

Correct Answer: (1)
Solution:
Jaya Verma Sinha became the first woman chairperson of the Railway Board in 2023, marking a significant milestone in Indian Railways' history.
Thus, the correct answer is **Option (1): Jaya Verma Sinha**.

Quick Tip

Tip: Keep track of firsts in significant appointments, especially involving women, as they are often featured in current affairs questions.

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49. Match List-I with List-II:

List-I (Country)	List-II (Currency)
(A) Myanmar	(III) Kyat
(B) Russia	(I) Ruble
(C) Malaysia	(IV) Ringgit
(D) Bhutan	(II) Ngultrum

Options:
(1) (A) - (III), (B) - (I), (C) - (II), (D) - (IV)
(2) (A) - (III), (B) - (I), (C) - (IV), (D) - (II)
(3) (A) - (IV), (B) - (I), (C) - (III), (D) - (II)
(4) (A) - (II), (B) - (I), (C) - (IV), (D) - (III)

Correct Answer: (2)
Solution:
The correct matches are: - (A) Myanmar → (III) Kyat - (B) Russia → (I) Ruble - (C)

Malaysia → (IV) Ringgit - (D) Bhutan → (II) Ngultrum.
Thus, the correct answer is **Option (2): (A) - (III), (B) - (I), (C) - (IV), (D) - (II)**.

Quick Tip

Tip: Learn the currencies of major countries, especially those in Asia and those involved in significant global or regional organizations.

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50. "Jhula Ghat Suspension Bridge" between India and which country has become fully operational now?

(1) Bhutan (2) Nepal (3) China (4) Myanmar

Correct Answer: (2)
Solution:
The "Jhula Ghat Suspension Bridge" connects India and Nepal. It serves as a vital link for both trade and transportation between the two countries.
Thus, the correct answer is **Option (2): Nepal**.

Quick Tip

Tip: Keep track of key infrastructural developments involving India's neighboring countries, especially for international trade and relations.

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51. Due to ocean acidification, when the ocean becomes more acidic, what happens to the pH level of the ocean?

(1) The pH level goes down. (2) The pH level stays the same.
(3) The pH level goes up. (4) The pH level becomes zero.

Correct Answer: (1)
Solution:
Ocean acidification occurs when carbon dioxide (CO_2) dissolves in seawater, forming carbonic acid. This increases acidity, causing the pH level to decrease. A lower pH indicates higher acidity.
Thus, the correct answer is **Option (1): The pH level goes down**.

Quick Tip

Tip: Remember that a lower pH signifies increased acidity, while a higher pH indicates basicity.

52. Who is the first para-athlete to receive the Padma Bhushan award in India?

(1) Bhavina Patel (2) Devendra Jhajharia (3) Avani Lekhara
(4) Mariyappan Thangavelu

Correct Answer: (2)
Solution:
Devendra Jhajharia became the first para-athlete to receive the Padma Bhushan award in India. He is a two-time Paralympic gold medalist in javelin throw.
Thus, the correct answer is **Option (2): Devendra Jhajharia**.

Quick Tip

Tip: Keep track of notable awards and achievements by Indian athletes, especially in the context of para-sports.

53. Zemu Glacier is located in which state of India?

(1) Uttarakhand (2) Himachal Pradesh
(3) Sikkim (4) Arunachal Pradesh

Correct Answer: (3)
Solution:
The Zemu Glacier is located in the eastern Himalayas in the state of **Sikkim**. It is one of the largest glaciers in the eastern Himalayas and a source of water for many rivers in the region.
Thus, the correct answer is **Option (3): Sikkim**.

Quick Tip

Tip: Memorize key geographical locations of glaciers, rivers, and mountain ranges in India for geography-related questions.

54. Who among the following is Chile's first woman President?

(1) Mary Robinson (2) Michelle Bachelet
(3) Kim Campbell (4) Jennifer Shipley

Correct Answer: (2)
Solution:
Michelle Bachelet became Chile's first woman President. She served two terms, making significant contributions to Chile's political and social reforms.
Thus, the correct answer is **Option (2): Michelle Bachelet**.

Quick Tip

Tip: Focus on prominent women leaders worldwide, especially those who have achieved historic firsts in their countries.

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55. Which organisation developed and launched 'Ugram' Indigenous Assault Rifle for the armed forces?

(1) ISRO (2) BEL (3) HAL (4) DRDO

Correct Answer: (4)
Solution:
The **Defence Research and Development Organisation (DRDO)** developed and launched the 'Ugram' Indigenous Assault Rifle, which is specifically designed for use by the Indian armed forces.
Thus, the correct answer is **Option (4): DRDO**.

Quick Tip

Tip: For defence-related questions, focus on the contributions of DRDO, HAL, and BEL as they are the primary organizations responsible for indigenous equipment development.

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56. Which of the following substances is a bad conductor of electricity?

(1) Diamond (2) Gold (3) Silver (4) Graphite

Correct Answer: (1)
Solution:
Diamond is a bad conductor of electricity because it lacks free electrons in its structure. Although it is a form of carbon, its strong covalent bonding prevents the flow of electricity. On the other hand: - Gold and silver are excellent conductors. - Graphite (another form of carbon) is a good conductor due to the presence of free electrons.
Thus, the correct answer is **Option (1): Diamond**.

Quick Tip

Tip: Remember that conductivity depends on the availability of free electrons. Graphite conducts electricity, but diamond does not due to differences in atomic structure.

57. Which of the following diseases is caused due to the deficiency of proteins?

(1) Arthritis
(2) Kwashiorkor
(3) Goitre
(4) Night Blindness

Correct Answer: (2)
Solution:
Kwashiorkor is a disease caused by severe protein deficiency. It is commonly seen in children in regions with limited access to protein-rich food and is characterized by edema, an enlarged liver, and stunted growth. Other diseases: - **Arthritis:** Caused by inflammation in the joints. - **Goitre:** Caused by iodine deficiency. - **Night Blindness:** Caused by vitamin A deficiency.
Thus, the correct answer is **Option (2): Kwashiorkor**.

Quick Tip

Tip: Remember diseases associated with nutritional deficiencies, including protein, vitamins, and minerals, for health and biology-related questions.

58. Match List-I with List-II:

List-I (Navy Institution)	**List-II (Place)**
(A) INS Chilka	(I) Goa
(B) INS Hansa	(II) Andhra Pradesh
(C) INS Satavahana	(III) Kerala
(D) INS Garuda	(IV) Odisha

Options:
(1) (A) - (III), (B) - (I), (C) - (II), (D) - (IV)
(2) (A) - (I), (B) - (IV), (C) - (II), (D) - (III)
(3) (A) - (IV), (B) - (I), (C) - (III), (D) - (II)
(4) (A) - (IV), (B) - (I), (C) - (II), (D) - (III)

Correct Answer: (4)

Solution:
The correct matches are: - **(A) INS Chilka → (IV) Odisha**. - **(B) INS Hansa → (I) Goa**. - **(C) INS Satavahana → (II) Andhra Pradesh**. - **(D) INS Garuda → (III) Kerala**.
Thus, the correct answer is **Option (4): (A) - (IV), (B) - (I), (C) - (II), (D) - (III)**.

Quick Tip

Tip: Familiarize yourself with key naval institutions and their locations, as these are often asked in geography and defence-related exams.

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59. DRDO has conducted the first successful flight test of Agni-5 missile equipped with MIRV technology. What is the full form of MIRV?

(1) Multiple Independently Targetable Re-Entry Vehicle
(2) Mission India Target Re-Entry Vehicle
(3) Multiple Independently Technology Re-Entry Vehicle
(4) Multiple Indirect Targetable Re-Entry Vehicle

Correct Answer: (1)
Solution:
The full form of MIRV is **Multiple Independently Targetable Re-Entry Vehicle**. It refers to a technology that enables a missile to carry multiple warheads, each capable of being aimed at a different target independently.
Thus, the correct answer is **Option (1): Multiple Independently Targetable Re-Entry Vehicle**.

Quick Tip

Tip: Focus on recent advancements in defence technology and their associated terminologies, especially from DRDO and ISRO.

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60. Which Indian has won the "Ramon Magsaysay Award-2023"?

(1) Korvi Rakshand
(2) Ashwini Kumar
(3) Dipti Ranjan Sahoo
(4) Dr. Ravi Kannan R.

Correct Answer: (4)
Solution:

Dr. Ravi Kannan R., a renowned oncologist, won the Ramon Magsaysay Award-2023 for his efforts in providing free cancer treatment to underserved populations in Assam. Thus, the correct answer is **Option (4): Dr. Ravi Kannan R.**.

Quick Tip

Tip: Keep track of major international and national awards and their recipients, especially those related to social impact and healthcare.
