

CUET 2024 GENERAL TEST SET- B
Paper with Solutions

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

1. "Jhulaghat 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 Jhulaghat Suspension Bridge connects India and Nepal, facilitating transportation and trade between the two countries.

 **Quick Tip**

Tip: Remember key international bridges and their locations for geography and current affairs s.

2. Which organization developed and launched 'Ugram' Indigenous Assault Rifle for the armed forces?

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

Correct Answer: (4)

Solution:

The Defense Research and Development Organization (DRDO) developed the Ugram rifle to enhance the capabilities of the armed forces.

 **Quick Tip**

Tip: DRDO is a key player in India's defense research and development sector. Keep track of their major projects for competitive exams.

3. 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 is the first para-athlete to receive the prestigious Padma Bhushan award for his exceptional contributions to sports, particularly in the javelin throw.

Quick Tip
Tip: Keep track of major national award recipients, especially in the field of sports and culture.

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

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

Correct Answer: (1)

Solution:

Diamond, despite being a form of carbon like graphite, is a bad conductor of electricity. Graphite, another carbon allotrope, conducts electricity well due to its free electrons.

💡 Quick Tip
Tip: Although diamond and graphite are both forms of carbon, their structure determines their electrical conductivity.

5. 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 the absorption of carbon dioxide by oceans increases, leading to a decrease in pH and making the ocean more acidic.

 **Quick Tip**

Tip: Ocean acidification is a key topic in environmental science. It highlights the impact of increased CO₂ levels on marine ecosystems.

6: Zemu Glacier is located in which state of India?

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

Correct Answer: (3) Sikkim

Solution: Zemu Glacier is located in Sikkim, in the northeastern part of India.

Quick Tip

Familiarizing yourself with famous glaciers and their locations helps in geography-related s.

7: 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

- (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) (A)-(IV), (B)-(I), (C)-(II), (D)-(III)

💡 Quick Tip

For matching s, start with familiar pairs to eliminate incorrect options quickly.

8: 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) Michelle Bachelet

Solution: Michelle Bachelet was the first woman President of Chile.

Quick Tip

Familiarizing yourself with key milestones in global political leadership is beneficial for general knowledge and exams.

9: 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) Multiple Independently Targetable Re-Entry Vehicle

Solution:

MIRV technology allows multiple warheads to be launched from a single missile and target different locations.

💡 Quick Tip

MIRV technology increases the offensive capabilities of ballistic missiles significantly.

10: 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) Kwashiorkor

Solution:

Kwashiorkor is a disease caused by severe protein deficiency.

 Quick Tip

Kwashiorkor is a major malnutrition disorder due to protein deficiency, common in areas with famine.

11: 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) Pradip Kumar Mohanty

Solution:

Pradip Kumar Mohanty has been appointed as the Chairman of the 16th Finance Commission of India.

 Quick Tip

The Finance Commission of India defines the financial relations between the central and state governments.

12: 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) Article 324

Solution:

The Election Commission of India derives its powers from Article 324 of the Indian Con-

stitution, which deals with the superintendence, direction, and control of elections.

 Quick Tip

Article 324 is crucial for the functioning of free and fair elections in India.

13: 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) Dr. Ravi Kannan R.

Solution:

Dr. Ravi Kannan R. was awarded the Ramon Magsaysay Award in 2023 for his remarkable contributions in the field of public service.

 Quick Tip

Keep track of prominent award winners in recent years as they are commonly asked in competitive exams.

14: Sri Ranganathaswamy Temple, situated in Tamil Nadu, is dedicated to which deity?

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

Correct Answer: (2) Lord Vishnu

Solution:

Sri Ranganathaswamy Temple, located in Tamil Nadu, is dedicated to Lord Vishnu and is one of the most significant Vishnu temples in India.

💡 Quick Tip

Remember key temples and their associated deities as they are frequently asked in exams related to Indian culture and heritage.

15: 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

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

Correct Answer: (1) (A)-(IV), (B)-(III), (C)-(I), (D)-(II)

💡 Quick Tip

Matching s can be solved faster by eliminating incorrect options for familiar pairs first.

16: What should come in the place of the 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 while the numbers increase as squares.

 Quick Tip

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

17: In which state is “Amchang Wildlife Sanctuary” located?

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

Correct Answer: (1) Assam

Solution:

Amchang Wildlife Sanctuary is located in Assam and is known for its rich biodiversity.

 Quick Tip

Memorizing wildlife sanctuaries and their locations is helpful for environment-related questions.

18: In the given analogy, choose the word which will replace the mark:

NEGI : MVTR :: SING : ?

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

Correct Answer: (2) TRNT

Solution:

In the analogy, each letter in the second word corresponds to the previous letter in reverse order from the alphabet sequence. Similarly, applying the same logic gives TRNT as the answer.

 Quick Tip

Focus on letter transformations in analogies by observing patterns like reversals, shifts, or replacements.

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

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

Correct Answer: (4) Bengaluru

Solution:

India's first 3D-printed post office was inaugurated in Bengaluru, showcasing innovation in construction technology.

 **Quick Tip**

Stay updated with the latest technological advancements and milestones for competitive exams.

20: Read the following information carefully to choose the best option for the question:

'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) $A \times U + S \times G$
- (2) $A + S / U \times G$
- (3) $A S + U \times G$
- (4) $A \times U / S + G$

Correct Answer: (1) $A \times U + S \times G$

Solution:

By decoding each relationship and mapping it to the given conditions, we determine that ' $A \times U + S \times G$ ' represents 'A is the son-in-law of G.'

 **Quick Tip**

Break the problem into smaller parts and decode each symbol to understand the relationship.

21: 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) mi

Solution:

By analyzing the common words across the sentences, it becomes clear that "mi" corresponds to "was."

 Quick Tip

Eliminate common words to identify unique codes in decoding problems.

22: 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) $6\frac{1}{2}$
- (2) 10
- (3) $7\frac{1}{2}$
- (4) $8\frac{1}{2}$

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

Solution:

At 'quarter past 3,' the hour hand is at slightly past 3, and the minute hand is at 15. Using the clock angle formula, the angle between the hands is calculated to be $8\frac{1}{2}$ degrees.

 Quick Tip

To calculate clock angles, use the formula: $|30H - 11M/2|$, where H is the hour and M is the minutes.

23: 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) 17 km, South West

Solution:

The boy travels:

6 km South, followed by another 9 km South, making his total southward journey 15 km.
8 km West.

To calculate the distance from his house, use the Pythagoras theorem:

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

Since he is both South and West of his starting point, his final direction is South West.

24: 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.

25: The problem given below consists of a and two statements numbered I and II. You have to decide whether the data provided in the statements are sufficient to answer the question. How many sisters does Sunny have?

- 1. Sunny is the only son of his parents.
- 2. Sunny's parents have three children.

- (1) Only statement I alone is sufficient to Correct Answer the question.
- (2) Only statement II alone is sufficient to Correct Answer the question.
- (3) Statements I and II together are sufficient to Correct Answer the question.
- (4) Either statement I or II alone is sufficient to Correct Answer the question.

Correct Answer: (3) Statements I and II together are sufficient to Correct Answer the question.

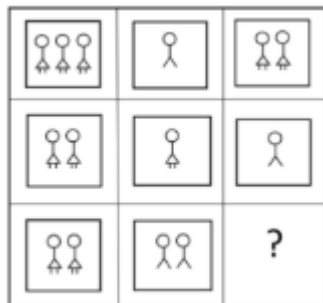
Solution:

From statement I, we know Sunny is the only son. From statement II, we know there are three children in total. Together, these statements imply Sunny has two sisters.

 Quick Tip

Combine information from all statements to ensure completeness while solving data sufficiency questions.

26: Find out which of the Correct Answer figures completes the figure matrix:



1. 
2. 
3. 
4. 

Correct Answer: (4)

Solution:

Analyzing the matrix, the logical progression across the rows indicates that option (4) completes the pattern.

💡 Quick Tip

When solving figure matrix questions, observe patterns in shape, position, or count of elements across rows and columns.

27: If in a certain code language, 'MERCURY' is coded as 'NGUGZXF', then how will 'ENTANGLE' be coded in the same code language?

- (1) FPXFSSMSM
- (2) FPWEWSMSM
- (3) FPWESWSN
- (4) FPWFTNSM

Correct Answer: (2) FPWEWSMSM

Solution:

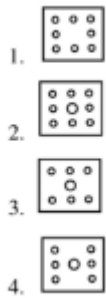
The coding follows a specific alphabetical shift pattern. After shifting each letter appropriately, 'ENTANGLE' becomes 'FPWEWSMSM'.

💡 Quick Tip

Look for consistent shifts in letters to solve coding-decoding problems.

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





Correct Answer: (3)

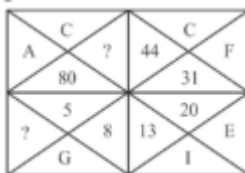
Solution:

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

Quick Tip

Visualize the unfolding process carefully to predict the final appearance of the paper.

29: 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) 61 and K

Solution:

The pattern involves a progressive increase in both numbers and letters.

Quick Tip

Observe the progression of numbers and letters for identifying missing elements in sequences.

30: 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 reflection problems, subtract the time from 12:00 to get the correct time.

31: What will be the next number in the series: 3, 6, 10.5, 17, 26, ?

Options:

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

Correct Answer: (2) 38

Solution:

1. The pattern involves adding consecutive numbers with increasing increments:

$$3 + 3 = 6, \quad 6 + 4.5 = 10.5, \quad 10.5 + 6.5 = 17, \quad 17 + 9 = 26.$$

2. The next increment is 12:

$$26 + 12 = 38.$$

 **Quick Tip**

Identify the difference between consecutive numbers to find the pattern in such series.

32: Six people E, H, K, M, S, and U are seated in a circle facing the center. U and H are immediate neighbors 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?

Options:

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

Correct Answer: (1) M

Solution:

By positioning each person according to the conditions:

- M is seated between U and H.
- E is seated between K and S.
- H is to the immediate right of S.

Thus, U's immediate right is M.

 Quick Tip

Use logical deduction to place individuals step by step in seating arrangements.

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

Options:

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

Correct Answer: (3) 16

Solution:

Using the BODMAS rule:

$$\begin{aligned}24 \div 4 &= 6, \\6 \times 2 &= 12, \\12 + 8 &= 20, \\20 - 4 &= 16.\end{aligned}$$

 Quick Tip

Always follow BODMAS (Brackets, Orders, Division, Multiplication, Addition, Subtraction) for simplifying expressions.

34: 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:

Options:

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

Correct Answer: (2) 10th

Solution:

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

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

 Quick Tip

Understand the relationships between ranks by applying basic arithmetic.

35: Read the given statements and conclusions carefully, assuming the information given is true. Decide which of the conclusions logically follows from the statements.

Statements:

- No keyboard is a mouse.
- All mice are computers.

- All computers are laptops.

Conclusions:

I. All mice 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) Both conclusions I and II follow.

Solution:

For syllogism questions, the Venn diagrams show that both conclusions logically follow from the statements.

Quick Tip

For syllogism questions, use Venn diagrams to visualize the relationships.

36: Find out which of the Correct Answer figures can be formed using all the pieces given in the problem figure.

Problem figure:



1. 
2. 
3. 
4. 

Correct Answer: (3)

Solution:

The given pieces in the problem figure can be rearranged to form Option (3). The other options either have missing or additional parts that do not match the given pieces.

💡 Quick Tip

Carefully analyze the shapes and arrangements in the problem figure to identify the correct answer.

37: 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:

Options:

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

Correct Answer: (3) 168

Solution:

1. Let the HCF be x , so the LCM is $60x$.
2. The sum of HCF and LCM is 854:

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

3. LCM:

$$60 \times 14 = 840.$$

4. The product of the numbers is:

$$\text{HCF} \times \text{LCM} = 70 \times \text{other number} = 14 \times 840.$$

Solving for the other number:

$$\text{other number} = \frac{11760}{70} = 168.$$

 Quick Tip

Use the formula Product of two numbers = LCM $\times$ HCF to solve such problems.

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

Options:

(1) $\frac{3}{8}$

(2) $\frac{6}{7}$

(3) $\frac{7}{8}$

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

Correct Answer: (2) $\frac{6}{7}$

Solution:

1. The greatest fraction is $\frac{7}{8}$ and the smallest is $\frac{8}{11}$.

2. Convert to a common denominator to calculate the difference:

$$\frac{7}{8} - \frac{8}{11} = \frac{77}{88} - \frac{64}{88} = \frac{13}{88}.$$

 Quick Tip

Convert fractions to the same denominator for easy comparison.

39: The present age of Harish is 8 times the sum of the ages of his two sons. After 8 years, his age will be twice the sum of the ages of his two sons. The

present age of Harish (in years) is:

Options:

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

Correct Answer: (4) 34

Solution:

1. Let the sum of the ages of Harish's two sons be x . Then Harish's present age is $8x$.

2. After 8 years:

- Harish's age will be $8x + 8$.
- The sum of his sons' ages will be $x + 16$.

3. Given that $8x + 8 = 2(x + 16)$, solve for x :

$$8x + 8 = 2x + 32 \implies 6x = 24 \implies x = 4.$$

4. Harish's present age:

$$8x = 8 \times 4 = 34.$$

 Quick Tip

For age-related problems, create equations and solve systematically step by step.

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

Options:

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

Correct Answer: (2) 43.6

Solution:

1. Let the number of boys be $3x$ and the number of girls be $2x$. Since $3x + 2x = 40$, $x = 8$. Therefore, there are 24 boys and 16 girls.

2. Total marks scored by boys:

$$24 \times 42 = 1008.$$

3. Total marks scored by girls:

$$16 \times 46 = 736.$$

4. Average marks scored by the whole class:

$$\text{Average} = \frac{1008 + 736}{40} = \frac{1744}{40} = 43.6.$$

 Quick Tip

Use weighted averages when combining averages of different groups.

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

Options:

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

Correct Answer: (2) 750

Solution:

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

$$225 = 0.9 \times 300.$$

2. To find the maximum marks:

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

 Quick Tip

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

42: A certain sum becomes Rs.2356 in 3 years and Rs.2660 in 5 years on simple interest. What is the value of the sum?

Options:

- (1) Rs.1800
- (2) Rs.1880
- (3) Rs.1900
- (4) Rs.1980

Correct Answer: (3) Rs.1900

Solution:

1. The difference in interest over 2 years:

$$2660 - 2356 = 304.$$

2. Annual interest:

$$\frac{304}{2} = 152.$$

3. Sum:

$$2356 - (3 \times 152) = 1900.$$

 Quick Tip

For simple interest problems, use the formula $\text{Interest} = \text{Principal} \times \text{Rate} \times \text{Time}$.

43: 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:

Options:

- (1) 42
- (2) 40
- (3) 36
- (4) 32

Correct Answer: (2) 40

Solution:

1. Let the three numbers be $2y$, $3y$, and $3z$.

2. Since $3y = 5z$, $y = \frac{5z}{3}$.

3. Substitute into the sum equation:

$$2y + 3y + 3z = 136 \implies 2\left(\frac{5z}{3}\right) + 3\left(\frac{5z}{3}\right) + 3z = 136.$$

4. Simplify:

$$\frac{10z}{3} + \frac{15z}{3} + 3z = 136 \implies \frac{25z}{3} + 3z = 136 \implies \frac{34z}{3} = 136.$$

5. Solving for z :

$$z = \frac{136 \times 3}{34} = 12.$$

6. Calculate $y = \frac{5z}{3} = \frac{5 \times 12}{3} = 20$.

7. The first number is:

$$2y = 2 \times 20 = 40.$$

Quick Tip

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

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

Options:

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

Correct Answer: (3) 169

Solution:

1. Since the diagonals of a square are equal:

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

2. Substituting $k = 3$:

$$\text{Diagonal length} = 4k + 6 = 4(3) + 6 = 18 \text{ cm.}$$

3. Using the formula for the area of a square:

$$\text{Area} = \frac{1}{2} \times \text{Diagonal}^2 = \frac{1}{2} \times 18^2 = \frac{1}{2} \times 324 = 162 \text{ cm}^2.$$

 Quick Tip

For square area problems involving diagonals, use the formula $\text{Area} = \frac{1}{2} \times \text{Diagonal}^2$.

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

Options:

- (1) Rs.120
- (2) Rs.135
- (3) Rs.150
- (4) Rs.160

Correct Answer: (3) Rs.150

Solution:

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

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

3. From the selling price equation:

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

4. The difference between the marked price and cost price:

$$630 - 480 = 150.$$

 Quick Tip

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

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

Options:

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

Correct Answer: (3) 420

Solution:

1. Convert speed to meters per second:

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

2. Total distance covered in 36 seconds:

$$22.22 \times 36 = 800 \text{ meters.}$$

3. Subtract the tunnel length to find the train length:

$$800 - 350 = 450 \text{ meters.}$$

 **Quick Tip**

Convert speeds to the same units when working with time and distance problems.

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

Options:

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

Correct Answer: (2) 301.5

Solution:

1. Use the formula for the volume of a cylinder:

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

Substituting $V = 396$ and $r = 3$:

$$396 = \pi(3)^2 h \implies 396 = \pi \times 9h \implies h = \frac{396}{9\pi}.$$

Using $\pi = \frac{22}{7}$:

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

2. Curved Surface Area:

$$\text{CSA} = 2\pi r h = 2 \times \pi \times 3 \times 14 = 264 \text{ cm}^2.$$

Quick Tip

For cylinders, always use the formula for volume $V = \pi r^2 h$ and curved surface area $2\pi r h$ to solve problems.

48: 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 and 6 (where p is a natural number) is 4, then the value of $k - 2p$ is:

Options:

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

Correct Answer: (1) 0

Solution:

1. Calculate the mean of the first set:

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

2. Simplify:

$$46 + 3k = 64 \implies 3k = 18 \implies k = 6.$$

3. For the mode to be 4:

$$2p = 4 \implies p = 2.$$

4. Calculate $k - 2p$:

$$k - 2p = 6 - 4 = 0.$$

 Quick Tip

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

49: If $\tan A = \frac{4}{3}$, then $3 - \tan A(1/2 + \cos A)$ is:

Options:

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

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

Solution:

1. Using $\tan A = \frac{4}{3}$, calculate $\cos A$:

$$\tan A = \frac{\text{opposite}}{\text{adjacent}} \implies \text{hypotenuse} = \sqrt{4^2 + 3^2} = 5.$$

$$\text{Thus, } \cos A = \frac{\text{adjacent}}{\text{hypotenuse}} = \frac{3}{5}.$$

2. Substituting values into the expression:

$$3 - \tan A \left(\frac{1}{2} + \cos A \right) = 3 - \frac{4}{3} \left(\frac{1}{2} + \frac{3}{5} \right).$$

3. Simplify:

$$3 - \frac{4}{3} \left(\frac{5+6}{10} \right) = 3 - \frac{4}{3} \cdot \frac{11}{10} = 3 - \frac{44}{30} = 3 - \frac{22}{15} = \frac{45-22}{15} = \frac{13}{3}.$$

 Quick Tip

Use trigonometric identities to simplify complex expressions.

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

Options:

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

Correct Answer: (2) 6.4

Solution:

1. Since $DE \parallel BC$, by the Basic Proportionality Theorem (Thales' theorem):

$$\frac{AD}{DB} = \frac{AE}{EC}.$$

2. Substituting the values:

$$\frac{6}{4} = \frac{9}{EC}.$$

3. Cross-multiply to solve for EC :

$$EC = \frac{4 \times 9}{6} = 6.4 \text{ cm.}$$

 Quick Tip

When dealing with parallel lines and triangles, use the Basic Proportionality Theorem to establish relationships between segments.

51: 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?

Options:

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

Correct Answer: (4) 3 hours 45 minutes

Solution:

1. The first tap fills half the tank in:

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

2. After that, four taps are opened, so the remaining half is filled at four times the rate:

$$\frac{3}{4} = 0.75 \text{ hours.}$$

3. Total time taken:

$$3 + 0.75 = 3.75 \text{ hours} = 3 \text{ hours } 45 \text{ minutes.}$$

 Quick Tip

When multiple taps are opened, divide the remaining time proportionally.

52: From the given options, which pass connects Jammu with Srinagar?

Options:

- (1) Banihal pass
- (2) Nathula pass
- (3) Rohtang pass
- (4) Khyber pass

Correct Answer: (1) Banihal pass

Solution:

The Banihal pass is located in the Pir Panjal range and connects Jammu with Srinagar. It is a vital route for transportation between these two regions.

 Quick Tip

Learn the important passes and their locations for geography-related questions.

53: Match List-I with List-II:

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

Options:

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

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

Solution:

- 1. Vishakhadatta was a renowned poet, so (A) $\rightarrow$ (II).
- 2. Kartikeya Sarabhai is an environmentalist, so (B) $\rightarrow$ (III).
- 3. Charaka is associated with medicine, so (C) $\rightarrow$ (I).
- 4. Satyendra Nath Bose was a mathematician, so (D) $\rightarrow$ (IV).

💡 Quick Tip

Review the contributions of historical figures and match them with their respective fields.

54: 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?

Options:

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

Correct Answer: (1) 7.5

Solution:

- 1. Let d be the distance to the place. The speed downstream is:

$$8 + 2 = 10 \text{ km/h, and upstream is: } 8 - 2 = 6 \text{ km/h.}$$

- 2. Total time is given as 2 hours:

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

3. Solve for d :

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

 Quick Tip

For problems involving speed, use $\text{time} = \frac{\text{distance}}{\text{speed}}$.

55: Which of the following is not correctly matched regarding Padma Awards-2024?

Options:

- (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) Padma Shri Award → Mithun Chakraborty

Solution:

Option (2) is not correctly matched. Mithun Chakraborty has not received the Padma Shri Award in 2024.

 Quick Tip

Verify the award recipients from official announcements.

56: 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?

Options:

- (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) Mission Antyodaya

Solution:

Mission Antyodaya's objective is to conduct an annual survey at the gram panchayat level to monitor progress in rural development.

 Quick Tip

Mission Antyodaya aims to improve rural infrastructure and development.

57: Who has become the first woman chairperson of the Railway Board of Indian Railways in 2023?

Options:

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

Correct Answer: (1) Jaya Verma Sinha

Solution:

The correct answer is Jaya Verma Sinha. She became the first woman chairperson of the Indian Railway Board in 2023.

 Quick Tip

Jaya Verma Sinha became the first woman chairperson of the Indian Railway Board.

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

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

Options:

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

Correct Answer: (2) (C), (A), (B), (D)

Solution:

The correct sequence of state formation is:

1. Nagaland was formed in 1963.

2. Haryana was formed in 1966.
3. Sikkim was formed in 1975.
4. Goa was formed in 1987.

 Quick Tip

Memorize state formation years to avoid confusion in such questions.

59: 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) (A) - (III), (B) - (I), (C) - (IV), (D) - (II)

Solution:

1. Myanmar uses the Kyat as its currency, so (A) → (III).
2. Russia uses the Ruble, so (B) → (I).
3. Malaysia uses the Ringgit, so (C) → (IV).
4. Bhutan uses the Ngultrum, so (D) → (II).

 Quick Tip

Memorize the currencies of important countries for matching-type questions in competitive exams.

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

Options:

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

Correct Answer: (1) China

Solution:

The Quadrilateral Security Dialogue (QUAD) is a strategic alliance between the United States, Japan, India, and Australia. China is not a member of QUAD.

 Quick Tip

Remember that QUAD focuses on maritime security and includes the United States, India, Japan, and Australia.
