

BLOGS

Sectional Test on Quantitative Techniques for CLAT UG [Part 4]

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1. Six students scored an average of 75 marks in a test. One student's marks were later found to be wrongly added and were actually 60 instead of 90. What is the correct average of the six students?

- a. 70
- b. 72
- c. 75
- d. 80

2. A certain principal amount, when invested at a simple interest rate, grows to ₹12,000 in 4 years and to ₹15,000 in 8 years. Determine the initial principal amount.

- a. ₹6000
- b. ₹7500
- c. ₹9000
- d. ₹10,000

3. If 10 workers can complete a project in 18 days, how many days will 15 workers take to complete the same project?

- a. 10 days
- b. 12 days
- c. 14 days
- d. 18 days

4. A town had a population of 50,000 in the year 2019. In 2020, the population increased by 12%. In 2021, due to migration, the population decreased by 10%. What is the population of the town at the end of 2021?

- a. 50,000
- b. 54,000

- c. 55,000
- d. 55,400

5. The ratio of teachers to students in a school is 1 : 20. If there are 420 students in the school, how many teachers are there?

- a. 18
- b. 20
- c. 21
- d. 22

6. A bag's marked price is set at ₹2,000 by a shopkeeper. Despite offering a 15% discount, the shopkeeper still achieves a 20% profit. Determine the original cost price of the bag.

- a. ₹1,200
- b. ₹1,250
- c. ₹1,300
- d. ₹1,360

7. A bus makes a round trip between City A and City B. The outbound journey is completed at a speed of 60 km/h, and the return journey is at 40 km/h. If the entire trip lasts 10 hours, determine the distance separating the two cities.

- a. 200 km
- b. 240 km
- c. 300 km
- d. 360 km

8. A rectangular field's length is double its width. Given that its perimeter measures 180 meters, calculate the field's area.

- a. 1600 sq m
- b. 1800 sq m
- c. 2000 sq m
- d. 2400 sq m

9. The ratio of the incomes of A and B is 5 : 7. If B earns ₹14,000 more than A, what is A's income?

- a. ₹30,000
- b. ₹35,000
- c. ₹40,000
- d. ₹49,000

10. From a box holding 6 red balls and 4 blue balls, a single ball is randomly selected. What is the probability that the chosen ball is red?

- a. $\frac{1}{5}$
- b. $\frac{2}{5}$
- c. $\frac{3}{5}$
- d. $\frac{4}{5}$

11. The price of an article increases by 20% in the first year and decreases by 20% in the second year. What is the net change?

- a. 4% decrease
- b. 2% increase
- c. 0%
- d. 5% decrease

12. A city authority planned a budget where 40% was to be spent on infrastructure, 35% on education, and the remaining amount on healthcare. If the total budget was ₹2 crore, how much money was allocated to healthcare?

- a. ₹40 lakh
- b. ₹45 lakh
- c. ₹50 lakh
- d. ₹55 lakh

13. Two buses start at the same time from the same point and travel in opposite directions. One bus travels at 50 km/h and the other at 60 km/h. After how many hours will the distance between them be 330 km?

- a. 3 hours
- b. 6 hours
- c. 2.5 hours
- d. 5 hours

14. The average daily expenditure of a student over 6 days was ₹300. On one of the days, the student mistakenly recorded an expenditure of ₹500 instead of the actual ₹200.

What is the correct average daily expenditure?

- a. ₹275
- b. ₹250
- c. ₹300
- d. ₹375

15. A student buys 4 notebooks and 2 pens for a total of ₹180. Each notebook costs ₹30 more than a pen. What is the cost of one pen?

- a. ₹10
- b. ₹15
- c. ₹20
- d. ₹25

Answers

1. Correct Answer: A

$$\text{Original total} = 6 \times 75 = 450$$

$$\text{Excess added} = 90 - 60 = 30$$

$$\text{Correct total} = 450 - 30 = 420$$

$$\text{Average} = 420 \div 6 = \mathbf{70}$$

1. Correct Answer: C

$$\text{Interest for 4 years} = \text{Amount at 8 years} - \text{Amount at 4 years} = ₹15,000 - ₹12,000 = ₹3000$$

Since the interest for 4 years is ₹3000, the interest for a single year = ₹3000 / 4 years = ₹750 per year

$$\text{The investment grew for 4 years to reach ₹12,000. The total interest in the first 4 years} = ₹750 \times 4 = ₹3000$$

The total amount after 4 years is the principal + the total interest earned.

$$₹12000 = \text{Principal} + ₹3000$$

Therefore, Principal = ₹12,000 - ₹3000 = **₹9000**

1. Correct Answer: B

Workers × Days = constant

$$10 \times 18 = 15 \times x$$

$$x = \mathbf{12 \text{ days}}$$

1. Correct Answer: D

$$2020 \text{ population} = 50,000 \times 1.12 = 56,000$$

$$2021 \text{ population} = 56,000 \times 0.9 = \mathbf{55,440}$$

1. Correct Answer: C

1 teacher = 20 students

$$420 \div 20 = \mathbf{21 \text{ teachers}}$$

1. Correct Answer: B

$$\text{Selling price after discount} = 85\% \text{ of } 2000 = 1700$$

$$1700 = 120\% \text{ of CP}$$

$$\text{CP} = 1700/1.2 = \mathbf{₹1,250}$$

1. Correct Answer: B

Let distance = d

$$d/60 + d/40 = 10$$

$$(2d + 3d)/120 = 10$$

$$5d = 1200$$

$$d = \mathbf{240 \text{ km}}$$

1. Correct Answer: C

Let breadth = x, length = 2x

$$\text{Perimeter} = 2(x + 2x) = 180$$

$$6x = 180$$

$$x = 30$$

$$\text{Area} = 30 \times 60 = \mathbf{2,000}$$

1. Correct Answer: B

$$\text{Difference} = 7x - 5x = 14,000$$

$$2x = 14,000$$

$$x = 7000$$

$$\text{A's income} = 5 \times 7,000 = \mathbf{₹35,000}$$

1. Correct Answer: C

$$\text{Red balls} = 6$$

$$\text{Total balls} = 10 (6 + 4)$$

$$\text{Probability} = 6/10 = \frac{3}{5}$$

1. Correct Answer: A

$$\text{Net change} = -(20 \times 20)/100 = \mathbf{-4\%}$$

1. Correct Answer: C

$$\text{Spent on infrastructure + education} = 40\% + 35\% = 75\%$$

$$\text{Remaining} = 25\%$$

$$25\% \text{ of ₹2 crore} = \mathbf{₹50 \text{ lakh}}$$

1. Correct Answer: A

$$\text{Relative speed} = 50 + 60 = 110 \text{ km/h}$$

$$\text{Time} = 330/110 = \mathbf{3 \text{ hours}}$$

14. **Correct Answer: B**

$$\text{Recorded total} = 6 \times 300 = 1800$$

$$\text{Extra added by mistake} = 500 - 200 = 300$$

$$\text{Correct total} = 1800 - 300 = 1500$$

$$\text{Correct average} = 1500/6 = \text{₹250}$$

15. **Correct Answer: A**

Let the cost of one pen be ₹x.

Then the cost of one notebook = ₹(x + 30).

$$\text{Total cost} = 4(x + 30) + 2x$$

$$= 4x + 120 + 2x$$

$$= 6x + 120$$

$$\text{Given total} = 180$$

$$6x = 180 - 120$$

$$6x = 60$$

$$x = \mathbf{10}$$