

BLOGS

Sectional Test on Quantitative Techniques for CLAT UG [Part 15]

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1. Given 20 numbers with an average of 45, what is the average of the three numbers that were removed if the remaining 17 numbers have an average of 48?

- a. 30
- b. 35
- c. 40
- d. 25

2. At a simple interest rate, an amount grows to ₹7,200 after 2 years and reaches ₹8,100 after 3 years. Determine the annual rate of interest.

- a. 10%
- b. 12.5%
- c. 15%
- d. 18%

3. The ratio of two numbers is 11 : 13. If their product is 14,300, find the smaller number.

- a. 99
- b. 110
- c. 121
- d. 143

4. A train's speed is 60 km/h for a specific distance. If the train traveled 10 km/h faster, it would save 1 hour of travel time. What is the total distance covered?

- a. 360 km
- b. 420 km
- c. 480 km
- d. 540 km

5. What is the loss percentage if the selling price of 20 articles equals the cost price of 16 articles?

- a. 20%
- b. 25%
- c. 30%
- d. 35%

6. A number is first increased by 40% and then decreased by 30%. What is the net percentage change?

- a. 2% increase
- b. 5% increase
- c. 8% decrease
- d. 12% decrease

7. What is the probability of drawing two green balls simultaneously from a box containing 5 red, 7 black, and 8 green balls?

- a. $14/95$
- b. $4/95$
- c. $7/95$
- d. $8/95$

8. The original mixture of milk and water was in a 9:5 ratio. After 20 litres of water were added, the ratio shifted to 9:7. Determine the initial volume of the mixture.

- a. 56 litres
- b. 70 litres
- c. 84 litres
- d. 98 litres

9. A family of six has an average age of 27 years. If a 5-year-old child joins the family, what will their new average age be?

- a. 24.2 years
- b. 25 years
- c. 23.85 years
- d. 27 years

10. A boat travels 48 km with the current in 4 hours, but the return journey against the current takes 6 hours. Determine the speed of the stream.

- a. 2 km/h
- b. 3 km/h
- c. 4 km/h
- d. 5 km/h

11. A rectangle's length undergoes a 20% increase, while its breadth is reduced by 10%. Determine the resulting overall percentage change in the area.

- a. 8% increase
- b. 10% increase
- c. 12% increase
- d. 15% increase

12. The average of the first 10 numbers from a set of 18 is 32, and the remaining 8 numbers have an average of 40. Determine the overall average of all 18 numbers.

- a. 34.2
- b. 42
- c. 35.55
- d. 38.9

13. A man saves 40% of his income. His expenditure increases by 25%, due to which his savings reduce by ₹2,000. What is his original income?

- a. ₹20,000
- b. ₹25,000
- c. ₹30,000
- d. ₹35,000

14. If the side of a cube is decreased by 20%, by what percentage does its volume decrease?

- a. 36%
- b. 48.8%
- c. 51.2%
- d. 60%

15. The current ratio of ages between A and B is 5:7. In a decade, this ratio will shift to 7:9. Determine the current age of B.

- a. 28
- b. 35
- c. 42
- d. 49

Answers

1. Correct Answer: A

Total of 20 numbers = $20 \times 45 = 900$

Remaining total = $17 \times 48 = 816$

Removed total = $900 - 816 = 84$

Average = $84 \div 3 = \mathbf{30}$

2. Correct Answer: C

Difference = $8100 - 7200 = 900 = 1 \text{ year's SI}$

Principal = $7200 - 2 \times 900 = 5400$

Rate = $(900 \times 100) / (5400) = \mathbf{15\%}$

3. Correct Answer: B

Let numbers = $11x, 13x$

Product = $143x^2 = 14300$

$x^2 = 100 \rightarrow x = 10$

Smaller = $11 \times 10 = \mathbf{110}$

4. Correct Answer: C

Let speed = x

$480/x - 480/(x+10) = 1$

Solving gives $x = 60$

Distance = $60 \times 8 = \mathbf{480 \text{ km}}$

5. Correct Answer: B

CP of 16 = SP of 20

CP/SP = $20/16 = 5/4$

Loss = $(1/4) \times 100 = \mathbf{25\%}$

6. Correct Answer: C

$$\text{Net \%} = 40 - 30 - (40 \times 30)/100 = 10 - 12 = \mathbf{-8\% (8\% \text{ decrease})}$$

7. Correct Answer: A

$$\text{Green balls} = 8$$

$$\text{Probability} = (8/20) \times (7/19) = \mathbf{14/95}$$

8. Correct Answer: C

$$\text{Water increases by 2 parts} = 20 \text{ L}$$

$$1 \text{ part} = 10 \text{ L}$$

$$\text{Original parts} = 14$$

$$\text{Quantity} = 14 \times 10 = \mathbf{84 \text{ L}}$$

9. Correct Answer: C

$$\text{Old total} = 6 \times 27 = 162$$

$$\text{New total} = 162 + 5 = 167$$

$$\text{Average} = 167/7 = \mathbf{23.85 \text{ years}}$$

10. Correct Answer: B

$$\text{Downstream} = 48/4 = 12$$

$$\text{Upstream} = 48/6 = 8$$

$$\text{Stream} = (12 - 8)/2 = \mathbf{3 \text{ km/h}}$$

11. Correct Answer: A

$$\text{Area change} = (1.2 \times 0.9 - 1) \times 100 = (1.08 - 1) \times 100 = \mathbf{8\% \text{ increase}}$$

12. Correct Answer: C

$$\text{Total} = (10 \times 32 + 8 \times 40) = 640$$

$$\text{Average} = 640/18 = \mathbf{35.55}$$

13. Correct Answer: B

$$\text{Savings} = 40\%, \text{ Expenditure} = 60\%$$

$$\text{Increase in expense} = 25\% \text{ of } 60\% = 15\%$$

$$15\% = ₹2000$$

$$\text{Income} = 2000 \times 100/15 = \mathbf{₹25,000}$$

14. Correct Answer: C

$$\text{Volume} \propto \text{side}^3$$

$$\text{Decrease} = 1 - (0.8)^3 = 1 - 0.512 = \mathbf{48.8\%}$$

15. Correct Answer: C

Let ages = $5x$, $7x$

$$(5x+10)/(7x+10) = 7/9$$

$$x = 6$$

$$B = 7 \times 6 = \mathbf{42}$$