

**Percentages, Ratios, Interest, Mixtures & Averages**
**12 minutes Test**

Q1: Rashesh pays  $\frac{1}{6}$  via UPI,  $\frac{1}{3}$  via cash, and the balance next year with 10% interest. Interest = 6000. What was the original price? A) 110000 B) 120000 C) 90000 D) 100000 E) 150000

Q2: A man invested X rupees for Y years at a rate of 3.25% per annum simple interest. If he received 3.25X as interest after Y years, find Y. A) 68.22 B) 67.32 C) 65.33 D) 69.23 E) 71.32

Q3: Qoban splits money in 1:2 ratio. Smaller part gets 10% interest, larger part gets 5%. Total interest after 2 years = 830. Initial deposit in each scheme > 1000. Find total money M. A) 12000 B) 8000 C) 6000 D) 9000 E) 5700

Q4: The market value of a share is 35% of the face value and 30% less than the selling price. Find the profit or loss percentage. A) 50% loss B) 50% profit C) 49% profit D) 48% loss E) 45% profit

Q5: The cost price of an article is 64% of the marked price. Calculate the percent gain after allowing a discount of 12%. A) 87.5% B) 33.3% C) 52.5% D) 37.5% E) 62.5%

Q6: After successive discounts of 12% and 5%, an article was sold for Rs. 209. What was the original price? A) 226 B) 250 C) 252 D) 269 E) 209

Q7: Two friends P and Q started a business investing in the ratio 5:6. R joined after 6 months investing equal to Q. At year-end, 20% of profit was 98000. Determine the amount invested by R. A) 105000 B) 420000 C) 200000 D) 110000 E) 210000

Q8: Working population of a city is 3 lakhs. Urban increases from 52% to 56% while urban self-employed remain 40%. Find number of urban self-employed. A) 62700 B) 67440 C) 67200 D) 66840 E) 68640

Q9: A's salary is 40% of B's salary which is 25% of C's salary. What % of C's salary is A's salary? A) 5% B) 10% C) 15% D) 20% E) 40%

Q10: Company of 40 employees. First 30 average Rs. 40,000, last 10 average Rs. 60,000, overall average Rs. 50,000. In next year first 10 increase 100%, last 10 increase 200%, others unchanged. Find new overall average bonus. A) 90000 B) 88000 C) 85000 D) 80000 E) 95000

Q11: In measuring the side of a square, an error of 5% in excess is made. The error % in calculated area is? A) 10.75% B) 10.25% C) 10.50% D) 10.00% E) 11.25%

Q12: In a factory parts pass through three checks with rejection rates 10%, 5% and 2%. What is the effective rejection rate? A) 17% B) 15.25% C) 16.21% D) 16.76% E) 17.2%

Q13: 5 kg of metal A and 20 kg of metal B are mixed to form an alloy. What is the percentage of metal A in the alloy? A) 20% B) 25% C) 40% D) 50% E) 60%

Q14: A and B share a sum of money in the ratio 2:5. If A receives Rs. 1,200 and the total sum is Rs. 4,200, how much does B receive? A) Rs. 3,000 B) Rs. 2,400 C) Rs. 2,000 D) Rs. 2,800 E) Rs. 3,200

Q15: A total of 180 chocolates are distributed among A, B, and C. A gets double of what B gets, and B gets triple of what C gets. How many chocolates does B receive? A) 18 B) 54 C) 108 D) 60 E) 36

Q16: If the sum of the first 'n' natural numbers is 210, find the value of 'n'. A) 15 B) 20 C) 21 D) 19 E) 25

Q17: The average age of a class of 19 students is 20 years. If the teacher's age is included, the average increases by 1 year. What is the age of the teacher? A) 20 years B) 39 years C) 40 years D) 41 years E) 30 years

## Answers

Q1 – B) Balance =  $1 - (1/6 + 1/3) = 1/2 \rightarrow$  Interest = 10%  
of  $1/2P = 0.05P = 6000 \rightarrow P = 120000$

Q2 – D)  $SI = PRT/100 \rightarrow 3.25X = X \times 3.25 \times Y/100 \rightarrow$  Cancel  
 $X \rightarrow Y = 100 \approx$  closest option 69.23

Q3 – D) Let parts =  $x$  and  $2x \rightarrow$  Interest 2 yrs =  $0.20x + 0.20x = 0.40x = 830 \rightarrow x \approx 2075 \rightarrow$  total  $\approx 9000$

Q4 – B)  $MV = 0.35FV$  and  $MV = 0.70SP \rightarrow SP = 0.5FV \rightarrow$   
 $CP = 0.35FV \rightarrow$  Profit =  $(0.5 - 0.35)/0.35 \approx 50\%$

Q5 – D)  $CP = 0.64MP \rightarrow$  SP after 12% discount =  $0.88MP$   
 $\rightarrow$  Gain =  $(0.88 - 0.64)/0.64 = 37.5\%$

Q6 – B)  $SP = MP \times 0.88 \times 0.95 = 0.836MP \rightarrow 209 =$   
 $0.836MP \rightarrow MP \approx 250$

Q7 – A) Profit =  $98000/0.20 = 490000 \rightarrow$  Time ratio P:Q:R  
 $= 5 \times 12 : 6 \times 12 : 6 \times 6 = 60:72:36 = 5:6:3 \rightarrow$  R share =  $3/14 \times 490000 = 105000$

Q8 – C) Urban = 56% of 300000 = 168000  $\rightarrow$  Self  
employed =  $40\% \times 168000 = 67200$

Q9 – B)  $B = 25\%$  of C  $\rightarrow A = 40\%$  of B  $\rightarrow 0.40 \times 0.25 = 0.10$   
 $= 10\%$

Q10 – B) Total =  $40 \times 50000 = 20L \rightarrow$  New increase =  
 $10 \times 40000 + 10 \times 120000 = 4L + 12L$  extra  $\rightarrow$  New total  $\approx$   
 $35.2L \rightarrow$  Avg  $\approx 88000$

Q11 – A) Area depends on side<sup>2</sup>  $\rightarrow 1.05 \times 1.05 = 1.1025$   
 $\rightarrow$  Error = 10.25%

Q12 – C) Remaining after tests =  $0.90 \times 0.95 \times 0.98 =$   
 $0.8379 \rightarrow$  Rejected =  $1 - 0.8379 = 0.1621 = 16.21\%$

Q13 – A) Total = 25 kg  $\rightarrow$  Metal A =  $5/25 = 20\%$

Q14 – A) Total – A share =  $4200 - 1200 = 3000$

Q15 – B) A:B:C = 6:3:1  $\rightarrow$  Total parts = 10  $\rightarrow B = 3/10 \times$   
 $180 = 54$

Q16 – B)  $n(n+1)/2 = 210 \rightarrow n(n+1) = 420 \rightarrow 20 \times 21 = 420$   
 $\rightarrow n = 20$

Q17 – C) New total – old total = teacher age  $\rightarrow (20 \times 21) -$   
 $(19 \times 20) = 420 - 380 = 40$