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Bank PO Maths Quiz 34

Direction: Study the following questions carefully and choose the right answer.

1. A motorboat takes x hours to travel 900 km in downstream and it takes y hours to travel the same distance in upstream. If the speed of the stream is 2 km per hour and the speed of the motorboat in still water is 8 km more than the speed of the stream, then find the sum of x and y ?

- A. 175.5 hours B. 175 hours C. 192.5 hours D. 187.5 hours E. None of these

2. A shopkeeper purchases a toy for Rs. 900. He marks the price of the toy in such a way that after allowing $x\%$ discount on the marked price he makes 10% profit but after allowing $2x\%$ discount on the marked price he makes 40% loss. What is the marked price of the toy?

- A. Rs. 1440 B. Rs. 1460 C. Rs. 1280 D. Rs. 1350 E. None of these

3. If a total of 'N' number of 5 rupee coins were distributed among three boys A, B, and C in the ratio of 4 : 5 : 7 respectively, then the amount received by C was Rs. 40 more than that of B. What was the average of the amount received by A and B?

- A. Rs. 36 B. Rs. 90 C. Rs. 45 D. Rs. 180 E. None of these

4. The initial investments of Anurag, Anu, and Sippy was 7 : 9 : 12 respectively. At the end of two years, they share the profit in the ratio of 14 : 21 : 32 respectively. If Sippy had invested for 2 years, then find the difference between the duration for which Anurag and Anu had invested?

- A. 2 months B. 6 months C. 9 months D. 4 months E. None of these

5. The area of a rectangle is thrice the area of a circle. If the area of the circle is 616 sq. cm and the length of the rectangle is equal to the radius of the circle, then what is the perimeter of the rectangle?

- A. 292 cm B. 308 cm C. 284 cm D. 306 cm E. None of these

6. What quantity of solution containing 20% sugar should be mixed with 10 litres of solution containing 10% of sugar so that the resulting solution contains 18% sugar?

- A. 4 litres B. 40 litres C. 6 litres D. 60 litres E. None of these

7. A person invests Rs. 12000 at 20% per annum simple interest. At the end of 3 months, how much should he withdraw so that the total interest received on the sum of money at the end of three years is Rs. 100 more than the half of the principal?

- A. Rs. 10000 B. Rs. 7500 C. Rs. 2500 D. Rs. 2000 E. None of these

8. The ratio of marked price to cost price of an article is 5 : 4. If the cost price was increased by 20% then by what percent should a shopkeeper decrease the marked price if he wants to sell the article at no loss no profit?

- A. 40% B. 4% C. 8% D. 20% E. None of these

9. A train starts traveling at the constant rate of 3 km per minute. At the end of every 1-hour journey, it increases its speed by 10 km per hour. In which of the hour, it can cover a distance of 2000 km?

- A. 9th hour B. 10th hour C. 8th hour D. 11th hour E. None of these

10. TESHILA (A toy making company) produces first 100 toy guns at the cost of Rs. 5 each and the additional toy guns at the cost of Rs. 8 each. If the company sells 1000 toy guns for Rs. 12500, what was the company's total profit?

- A. Rs. 4700 B. Rs. 4500 C. Rs. 5200 D. Rs. 5000 E. None of these

Correct Answers:

1	2	3	4	5	6	7	8	9	10
D	A	B	E	A	B	D	B	B	E

Explanations:

1. The speed of the stream is 2 km per hour

The speed of the motorboat in still water = $8 + 2 = 10$ km per hour

x = Time taken in downstream

$$= \frac{900}{10 + 2} = \frac{900}{12} = 75 \text{ hours}$$

y = time taken in upstream

$$= \frac{900}{10 - 2} = \frac{900}{8} = 112.5 \text{ hours}$$

$$x + y = 75 + 112.5 = 187.5 \text{ hours}$$

Hence, option D is correct.

2. SP when P = 10% = 110% of 900 = Rs. 990

SP when loss = 40% = (100 - 40)% of 900 = 60% of 900 = Rs. 540

Let the MP = Rs. a then (100 - x)% of a = 990 ----- (i)

(100 - 2x)% of a = 540 ----- (ii)

Divide equation (i) by (ii)

$$\frac{(100 - x) \% \text{ of } a}{(100 - 2x) \% \text{ of } a} = \frac{990}{540} = \frac{11}{6}$$

$$\frac{100 - x}{100 - 2x} = \frac{11}{6}$$

$$600 - 6x = 1100 - 22x$$

$$500 = 16x$$

$$x = \frac{500}{16} = 31.25$$

(100 - x)% of a = 990 (i)

(100 - 31.25)% of a = 990

$$68.75\% \text{ of } a = 68.75 \times a = 990 \times 100$$

$$a = 1440 = \text{MP of the article}$$

Hence, option A is correct.

3. Let A received = 4x number of coins

Then, B = 5x and C = 7x

The difference between the amount received by B and that by C = (7x - 5x) × 5 = (2x) × 5 = 10x = 40

$$x = 4$$

The sum of the amount received by A and B = (4x + 5x) × 5 = 9x × 5 = 9 × 4 × 5

$$\text{The reqd. average} = \frac{9 \times 4 \times 5}{2} = \text{Rs. } 90$$

Hence, option B is correct.

4. Let Anurag had invested for x months and Anu had invested for y months then

$$7 \times x : 9 \times y : 12 \times 24 = 14 : 21 : 32$$

By comparing, $7x : 12 \times 24 = 14 : 32$

$$x = 18 \text{ months}$$

Similarly, by comparing, $9y : 12 \times 24 = 21 : 32$

$$y = 21 \text{ months}$$

The required difference = $21 - 18 = 3$ months

Hence, option E is correct.

5. The area of the circle = $\pi r^2 = 616$

$$\frac{22}{7} \times r^2 = 616$$

$$r^2 = 28 \times 7$$

$$r = 14 \text{ cm} = \text{length of the rectangle}$$

$$\text{Area of the rectangle} = l \times b = 14 \times b = 616 \times 3$$

$$b = 44 \times 3 = 132 \text{ cm}$$

$$\text{Perimeter of a rectangle} = 2(l + b) = 2(14 + 132) = 146 \times 2 = 292 \text{ cm}$$

Hence, option A is correct.

6. Let the quantity of solution = n litres then

$$20\% \text{ of } n + 10\% \text{ of } 10 = 18\% \text{ of } (10 + n)$$

$$0.2n + 0.1 \times 10 = (10 + n) \times 0.18$$

$$0.2n + 1 = 1.8 + 0.18n$$

$$0.02n = 1.8 - 1 = 0.8$$

$$n = 40 \text{ litres}$$

Hence, option B is correct.

7.

The SI at the end of 3 years = $\frac{1}{2}$ of 12000 + 100 = Rs. 6100

$$\text{SI of 3 months} = \frac{P \times R \times T}{100} = \frac{12000 \times 20 \times 3}{100 \times 12}$$

$$= 20 \times 3 \times 10 = \text{Rs. 600}$$

The SI of remaining 2 years 9 months = Rs. (6100 – 600) = Rs. 5500

$$P = \frac{100 \times \text{SI}}{R \times T}$$

$$= \frac{100 \times 5500}{20 \times 11/4} \quad (2 \text{ years 9 months} = \frac{11}{4} \text{ years})$$

$$P = 10,000$$

The sum of money he should withdraw at the end of 3 months = Rs. (12000 – 10000) = Rs. 2000

Hence, option D is correct.

8. Let the MP = Rs. 5x then the CP = Rs. 4x

When the CP is increased by 20% then then new cost price = 120% of 4x = 1.2 × 4x = Rs. 4.8x

$$\text{The reqd. \% decrease in MP} = \frac{(5x - 4.8x) \times 100}{5x} = \frac{0.2 \times 100}{5} = 20 \times 0.2 = 4\%$$

Hence, option B is correct.

9. 3 km per min = 3 × 60 km per hour = 180 km per hour

The total distance travelled in the first hour = 180 km

In the 2nd hour = 180 + 10 = 190 km

In 3rd hour = 190 + 10 = 200 km

In 4th hour = 200 + 10 = 210 km

In 5th hour = 210 + 10 = 220 km

In 6th hour 220 + 10 = 230 km

In 7th hour = 230 + 10 = 240 km

In 8th hour = 240 + 10 = 250 km

In 9th hour = 250 + 10 = 260 km

Total distance till 9th hour = 1980 km

In 10th hour speed = 260 + 10 = 270 km per hour

It means the train will cover the distance of 2000 km in 10th hour

Hence, option B is correct.

10. The cost of first 100 toy guns = Rs. $100 \times 5 =$ Rs. 500

The cost of remaining $1000 - 100 = 900$ toy guns = Rs. $900 \times 8 =$ Rs. 7200

The total cost of 1000 toy guns = Rs. $(500 + 7200) =$ Rs. 7700

The company's total profit = Rs. $(12500 - 7700) =$ Rs. 4800

Hence, option E is correct.



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