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Mixed Maths Questions for SBI PO Pre, IBPS PO Pre, IBPS Clerk Mains, SBI Clerk Mains and LIC AAO Pre Exams.

Bank PO Maths Quiz 37

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

1. The length of the diagonals of a rectangle are 15 meters. If the sides of the rectangle are increased by 8%, then what will be the new value of the diagonals?

- A. 17.5 meters B. 16.28 meters C. 16.20 meters D. 16.80 meters E. None of these

2. A person has 2 bags. He has 3 red and 4 white balls in the first bag, and 5 red and 6 white balls in second bag. What is the probability of getting one white ball from the two bags?

- A. 43/77 B. 42/77 C. 31/77 D. 84/77 E. None of these

3. A can complete a piece of work alone in x days but B takes $(2x - 4)$ days to complete the same piece of work. If the efficiency of B is 40% less than that of A, then in how many days A and B together can complete the piece of work?

- A. 6 days B. 8 days C. 7.5 days D. 12.5 days E. None of these

4. In a factory, the number of women workers is 20 less than the number of men workers. The average age of men workers is 42 kg, the average weight of women workers is 35 kg and the average weight of all the workers is 39.5 kg. What is the total number of workers in the factory?

- A. 60 B. 70 C. 65 D. 80 E. None of these

5. A dishonest milkman mixes milk to mineral water in the ratio of 5 : 3. He sells the mixture at the cost price of milk and earns a profit of 20%. If the price of mineral water is Rs. 20 per litre, then the price of one litre milk is how much percentage more than that of one litre mineral water?

- A. 50% B. 60% C. 75% D. 80% E. None of these

6. At present, the ratio of A's to B's age is 4 : 5. 10 years before, the ratio was 19 : 25. If C is 12 years older than A, then at present what is the average of the age (in years) of A, B and C together?

- A. 56 B. 54 C. 48 D. 44 E. None of these

7. A person invests 25% of his total sum of money under simple interest at the rate of 20% per annum and the remaining amount under compound interest at the rate of 10% per annum. At the end of 2 years, the simple interest received by him was Rs. 3680 less than that of compound interest, then how much money did he invest under compound interest?

- A. Rs. 32000 B. Rs. 42000 C. Rs. 48000 D. Rs. 54000 E. None of these

8. The ratio of initial investment of two friends Shayam and Ghanshyam was 4 : 5 respectively. At the end of 1 year, Shayam's share in profit was 20% more than that of Ghanshyam's. Find the respective ratio of the number of months, Shayam and Ghanshyam had invested the money?

- A. 2 : 3 B. 1 : 2 C. 3 : 2 D. 2 : 1 E. None of these

9. A seller marked the price of an article 20% above the cost price and sold the article at 10% discount on the marked price. During the festival session, he increases the marked price by 25% and offers 25% discount on the marked price. In this case he earns Rs. 180 more, then what is the cost price of the article?

- A. Rs. 4000 B. Rs. 6000 C. Rs. 5000 D. Rs. 4200 E. None of these

10. In a school of total 1800 students, the number of girls is 40% less than the number of boys. The ratio of boys to girls who got first class in an examination was 1 : 1. If 40% of the total number of students got first class, then how many girls did not get first class in the examination?

- A. 360 B. 375 C. 315 D. 325 E. None of these

Correct Answers:

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

Explanations:

1. The percentage increase in the sides of rectangle = the percentage increases in the diagonals = 8%

Therefore, new diagonal = 108% of 15 = 16.20 meters

Hence, option C is correct.

2. The probability of choosing one white ball from the bag 1

$$= \frac{4}{7}$$

The probability of choosing one white ball from the bag 2 = $\frac{6}{11}$

The probability of choosing one out of two bags = $\frac{1}{2}$

$$\text{The reqd. probability} = \frac{1}{2} \left(\frac{4}{7} + \frac{6}{11} \right) = \frac{44 + 42}{2 \times 77} = \frac{43}{77}$$

Hence, option A is correct.

3. Let the efficiency of A = 5a units then the efficiency of B = (100 – 40)% of 5a = 60% of 5a = 3a units

The total units of work done by A in x days = The total units of work done by B in 2x – 4 days

$$5a \times x = 3a(2x - 4)$$

$$ax = 12a$$

$$x = 12$$

It means, A can do the work in 12 days and B can do the work in 2x – 4 = 20 days

$$\text{Total work} = 5a \times 20 = 60a \text{ units}$$

$$\text{The efficiency of A and B together} = 5a + 3a = 8a$$

$$\text{The required number of days A and B together will take} = \frac{60a}{8a} = 7.5 \text{ days}$$

Hence, option C is correct.

4. Let the number of men = x then the number of women = $x - 20$

The sum of the weight of men = $42x$ kg

The sum of the weight of women = $35 \times (x - 20) = 35x - 700$ kg

The sum of the age of all the workers = $39.5(2x - 20)$

Therefore, $42x + 35x - 700 = 79x - 790$

$79x - 77x = 790 - 700 = 90$

$x = 45$

The number of workers = $x + x - 20 = 2x - 20 = 70$

Hence, option B is correct.

5. Let the total quantity of milk = 5 litres then the total quantity of mineral water = 3 litres

Let the price of milk per litre = Rs. x

Then the total cost price = Rs. $(5x + 3 \times 20) = \text{Rs. } (5x + 60)$

The total selling price = Rs. $8 \times x$

According to the question, $(100 + 20)\%$ of $(5x + 60) = 8x$

$6 \times (5x + 60) = 40x$

$10x = 60 \times 6 = 360$

$x = 36 = \text{price of milk per litre}$

The reqd. % = $\frac{(36 - 20) \times 100}{20} = 16 \times 5 = 80\%$

Hence, option D is correct.

6. Let At present, A's age = $4x$ years then B's age = $5x$ years

10 years before, A's age = $4x - 10$ years

B's age = $5x - 10$ years

According to the question,

$$\frac{4x - 10}{5x - 10} = \frac{19}{25}$$

By solving, $x = 12$

At present, A's age = $4x = 48$ years

B's age = $5x = 60$ years

C's age = A's age + 12 = $48 + 12 = 60$ years

$$\text{The reqd. average} = \frac{48 + 60 + 60}{3} = 56 \text{ years}$$

Hence, option A is correct.

7. Let the total sum of money = Rs. $4x$

25% of $4x$ = Rs. x @ 20% per annum

$$\text{SI, at the end of 2 years} = \frac{P \times R \times T}{100} = \frac{x \times 20 \times 2}{100} = \text{Rs. } 0.4x$$

$4x - x$ = Rs. $3x$ @ 10% Per annum under compound interest

$$\text{The CI at the end of 2 years} = p \left(1 + \frac{r}{100}\right)^n - p \Rightarrow 3x \left(1 + \frac{10}{100}\right)^2 - 3x$$

$$= 3x \times 1.21 - 3x = 3x (1.21 - 1)$$

$$= 0.21x \times 3 = 0.63x$$

According to the question,

$$0.63x - 0.4x = 0.23x = 3680$$

$$x = 16000$$

The amount under CI = $3x$ = Rs. 48000

Hence, option C is correct.

8. At the end of 1 year, Shayam's share in profit was 20% more than that of Ghanshyam's

Therefore, the ratio of Share = 6 : 5

Let Shayam invested for x months and Ghanshyam for y months then the ratio of their profit is

$$4x : 5y = 6 : 5$$

$x : y = 3 : 2$ = the ratio of the number of months they had invested

Hence, option C is correct.

9. Let the CP = Rs. 100x

Then MP = 120% of 100x = Rs. 120x

SP = (100 – 10)% of 120x = 90% of 120x = Rs. 108x

Profit = Rs. (108x – 100x) = Rs. 8x

During the festival session, the MP = 125% of 120x = $\frac{5 \times 120x}{4}$ = Rs. 150x

SP @ 25% discount = (100 – 25)% of 150x = $\frac{3 \times 150x}{4}$ = Rs. 112.5x

Profit = Rs. (112.5x – 100x) = Rs. 12.5x

According to the question,

$$12.5x - 108x = 180$$

$$4.5x = 180$$

$$x = 40$$

The CP = 100x = 100 × 40 = Rs. 4000

Hence, option A is correct.

10. Let the number of boys = $5x$ then the number of girls = $(100 - 40)\%$ of $5x = 3x$

Total number of students = $5x + 3x = 1800$

$$x = \frac{1800}{8} = 225$$

The number of girls = $225 \times 3 = 675$

The number of students who got first class = 40% of $1800 = 720$

The number of girls who got first class

$$= \frac{1}{2} \times 720 = 360$$

The number of girls who didn't get first class = $675 - 360 = 315$

Hence, option C is correct.



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