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Mixed Maths Questions for LIC AAO Exam.

LIC AAO Maths Quiz 8

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

1. A shopkeeper marks his article in such a way that even after allowing 18% discount on marked price, he gains 28%. If the cost price of the article is Rs.246, find the marked price of the article.

A. Rs. 342   B. Rs. 384   C. Rs. 348   D. Rs. 324   E. None of these

2. In a town males and females are in the ratio 3 : 2. Out of males 25% are children and rest are adults. If the adult male population of the town is 8100, find the total population of the town .

A. 22000   B. 24000   C. 20000   D. 18000   E. None of these

3. A, B and C entered into a partnership with investment in the ratio 5 : 4 : 6. After one year A doubled his investment and C withdrew half of his investment amount. At the end of two years, they earned a profit of Rs. 96000, find the sum of the shares of B and C in the profit.

A. Rs. 47000   B. Rs. 49000   C. Rs. 51000   D. Rs. 53000   E. None of these

4. Find the difference between compound interest and simple interest on a sum of Rs.120000 at the rate of 12% per annum for three years.

A. Rs. 8311.36   B. Rs. 5391.36   C. Rs. 6361.36   D. Rs. 7291.36   E. None of these

5. A, B and C start running around a circular field having circumference 144 metre at the same time from the same point. Speeds of A, B and C are 6 m/minute, 8 m/minute and 12 m/minute. Find after how much time, they will meet again at the same point for the first time.

A. 72 minutes   B. 36 minutes   C. 144 minutes   D. 18 minutes   E. None of these

6. A boat can travel from point A to point B and return back to point A in 9 hours. Speed of the boat in still water is 8 km/h and the speed of the stream is 4 km/h. Find the distance between A and B.

A. 18 km   B. 27 km   C. 36 km   D. 45 km   E. None of these

7. Four years ago, average of the ages of Pinki, Rinki and Tinki was 26 years. Average of the present ages of Rinki and Tinki is 28 years. Present age of Pinki is what percent of the present average age of all of them.

A. 123.33%   B. 113.33%   C. 103.33%   D. 93.33%   E. None of these

8. 12500 students appeared in an exam. 50% of the boys and 70% of the girls cleared the examination. If the total percent of students qualifying is 60%, how many girls appeared in the exam?

A. 6500   B. 6200   C. 5500   D. 6250   E. None of these

9. A bag contains 30 balls, numbered 1 to 30. Two balls are drawn at random. What is the probability that the balls drawn contain a number which is multiple of 4 or 6 but not a multiple of both?

A. $\dfrac{1}{6}$ B. $\dfrac{1}{5}$ C. $\dfrac{1}{4}$ D. $\dfrac{1}{3}$ E. None of these

10. One filling pipe P is three times faster than another filling pipe Q, if P can fill tank in 24 hours, then what is the time taken to completely fill the tank if both the pipes are opened together?

A. 12 hours   B. 18 hours   C. 16 hours   D. 14 hours   E. None of these

Correct Answers:

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

Explanations:

1.   mp × (100 – %d) = cp × (100 + %p)

⇒ mp × (100 – 18) = 246 × (100 + 28)

⇒ mp = $\dfrac{246 \times 128}{82}$

⇒ mp = Rs.384

Hence, option B is correct.

2. Let the total population of the town= y

% of males = $\frac{3}{5}$ × 100% = 60%

% of adult males = $\frac{100 - 25}{100}$ × 60% = 45%

$\frac{45}{100}$ × y = 8100

⇒ y = 8100 × $\frac{100}{45}$

⇒ y = 18000

Hence, option (D) is correct.

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3. Let the investment of A, B and C are Rs.5x, Rs.4x and Rs.6x

Ratio of shares of A, B and C in the profit = (5x + 5x × 2) : (4x + 4x) : $\left(6x + \frac{6x}{2}\right)$

= 15x : 8x : 9x = 15 : 8 : 9

Sum of the shares of B and C in the profit = $\frac{8 + 9}{15 + 8 + 9}$ × 96000

= $\frac{17}{32}$ × 96000

= Rs.51000

Hence, option (C) is correct.

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4. **Method I:**

$CI = P\left(1 + \frac{r}{100}\right)^n - P$

⇒ CI = 120000 × $\frac{112}{100}$ × $\frac{112}{100}$ × $\frac{112}{100}$ − 120000

⇒ CI = 168591.36 − 120000
⇒ CI = Rs.48591.36

$SI = \frac{P \times r \times t}{100}$

⇒ SI = $\frac{120000 \times 12 \times 3}{100}$ = Rs. 43200

Required difference = Rs. (48591.36 − 43200) = Rs.5391.36

Method II:
We know that, for three years

$$CI - SI = P \left(\frac{r}{100}\right)^2 \times \frac{300 + r}{100}$$

$$\Rightarrow CI - SI = 120000 \times \left(\frac{12}{100}\right)^2 \times \frac{300 + 12}{100}$$

$$\Rightarrow CI - SI = 120000 \times \left(\frac{3}{25}\right)^2 \times \frac{312}{100}$$

$$\Rightarrow CI - SI = 120000 \times \frac{9}{625} \times \frac{312}{100}$$

$$\Rightarrow CI - SI = Rs.5391.36$$

Hence, option (B) is correct.

5.   Time taken by A to complete one round

$$= \frac{144}{6} = 24 \text{ minutes}$$

Time taken by B to complete one round = $\frac{144}{8}$ = 18 minutes

Time taken by C to complete one round = $\frac{144}{12}$ = 12 minutes

LCM of 24, 18 and 12 = 72

Hence, they will meet after 72 minutes.
Hence, option (A) is correct.

6.   We know that Distance

$$= \text{time taken} \times \frac{(\text{speed of the boat})^2 - (\text{speed of the stream})^2}{(2 \times \text{speed of the boat})}$$

$$\Rightarrow d = 9 \times \frac{8^2 - 4^2}{2 \times 8}$$

$$\Rightarrow d = 9 \times \frac{64 - 16}{16}$$

$$\Rightarrow d = 9 \times \frac{48}{16}$$

$$\Rightarrow d = 27 \text{ km}$$
Hence, option (B) is correct.

7. Sum of the present ages of Pinki, Rinki and Tinki = 26 × 3 + 4 × 3 = 90

Present average age = $\dfrac{90}{3}$ = 30 years

Sum of the present ages of Rinki and Tinki = 2 × 28 = 56 years
Age of Pinki = 90 – 56 = 34 years

Reqd. % = $\dfrac{34}{30}$ × 100 = 113.33%

Hence, option (B) is correct.

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8. Let the number of boys be 'B' and girls be 'G'
As per the condition B + G = 12500 …..(1)

And $\dfrac{50}{100}$ B + $\dfrac{70}{100}$ G = $\dfrac{60}{100}$ × 12500

⇒ 5B + 7G = 75000 …..(2)

From ….(1) and ….(2)

We get, G = 6250 = number of girls
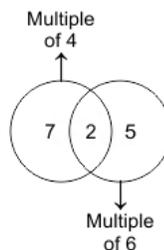
Hence, option (D) is correct.

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9. In between Ball 1 and Ball 30,

The total number of balls which is multiple of 4 = $\dfrac{30}{4}$ = 7 (The Highest perfect integer)

The total number of balls which is multiple of 6 = $\dfrac{30}{6}$ = 5

The total number of balls which is multiple of 4 and 6 = LCM of 4 and 6

= 12 = $\dfrac{30}{12}$ = 2 (The Highest perfect integer)

The total number of balls which is multiple of only 4 = 7 – 2 = 5
The total number of balls which is multiple of only 6 = 5 – 2 = 3
The total number of balls which is multiple of only 4 or 6 = 5 + 3 = 8

The reqd. probability = $\dfrac{8}{30} = \dfrac{4}{15}$

Hence, option E is correct.

10.   Let the required time taken = t hours

Let efficiency of pipe Q = x
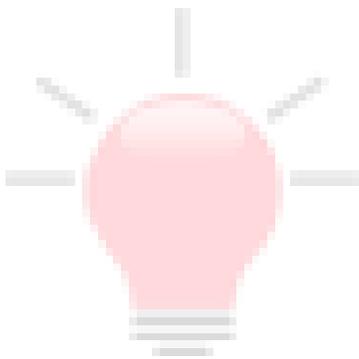
Then, efficiency of pipe P = 3x

According to the question:

3x × 24 = (3x + x) × t

$\Rightarrow \dfrac{72x}{4x} = t$

⇒ t = 18 hours

Hence, option B is correct.