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Mixed Maths Questions for LIC AAO Exam.

LIC AAO Maths Quiz 13

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

1. Average of a set of five consecutive even numbers is 48. Average of another set of five consecutive odd numbers is 49. Find the product of smallest even number of the first set and largest odd number of the second set.

- A. 3223 B. 2323 C. 3232 D. 2332 E. None of these

2. P, Q and R start running around a circular field having circumference 120 metre at the same time from the same point. Speeds of P, Q and R are 4 m/minute, 8 m/minute and 10 m/minute. Find after how much time, they will meet again at the same point for the first time.

- A. 35 minutes B. 40 minutes C. 45 minutes D. 60 minutes E. None of these

3. A train can cross a platform of equal length in 5 minutes. It can cross a man running in the direction of the train with the speed of 2m/s in 7 minutes. Find the speed of the train(in km/h).

- A. 10.8 B. 25 C. 7 D. 11.2 E. None of these

4. A shopkeeper sold an item at 20% profit and another item at 10% loss. If the cost price of both the items is same, find the overall profit percent.

- A. 7.55% B. 6% C. 5% D. 5% E. None of these

5. Puneet, Sumit and Amit started a business jointly investing Rs. 11 lakh, Rs. 16.5 lakh and Rs. 8.25 lakh respectively. The profit earned by them in the business at the end of three years was Rs. 19.5 lakh. What will be the half of Amit's share in the profit?

- A. Rs. 4.5 lakh B. Rs. 2.25 lakh C. Rs. 2.5 lakh D. Rs. 3.75 lakh E. None of these

6. Find the difference between compound interest and simple interest on a sum of Rs.48000 at the rate of 15% per annum for three years.

- A. Rs. 3200 B. Rs. 3204 C. Rs. 3402 D. Rs. 3202 E. None of these

7. Ratio of alcohol and water in a container is 5 : 6. 33 litre of the mixture is replaced by water and the ratio of alcohol and water became 5 : 17. Find the amount of alcohol in the initial mixture.

- A. 30 litres B. 36 litres C. 25 litres D. 20 litres E. None of these

8. The diameter of each wheel of a car is 70 cm. If each wheel rotates 400 times per minute, then the speed of the car (in km/hr) is (Take $\pi = 22/7$) :

- A. 52.8 km/hr B. 582.5 km/hr C. 52.25 km/hr D. 525.5 km/hr E. None of these

9. A bag contains 2 red balls, 3 green balls and 4 yellow balls. Three balls are drawn at random. Find the probability that all the balls are of same colour.

- A. $\frac{1}{14}$ B. $\frac{1}{28}$ C. $\frac{5}{84}$ D. $\frac{1}{21}$ E. None of these

10. A shopkeeper marked the price of an article 20% above the cost price and offers two successive discounts of 12% and 8%. If the cost price of the article is Rs.1200, find the selling price of the article.

- A. Rs. 965.824 B. Rs. 1225.824 C. Rs. 1055.824 D. Rs. 1165.824 E. None of these

Correct Answers:

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

Explanations:

1. Average of n consecutive even/odd numbers

$$\Rightarrow a = \text{first number} + (n - 1)$$

$$\Rightarrow 48 = \text{first number} + (5 - 1)$$

$$\Rightarrow \text{first number} = 44$$

Even numbers are: 44, 46, 48, 50, 52

And

$$a = \text{first number} + (n - 1)$$

$$\Rightarrow 49 = \text{first number} + (5 - 1)$$

$$\Rightarrow \text{first number} = 45$$

Odd numbers are: 45, 47, 49, 51, 53

Required product = $44 \times 53 = 2332$

Hence, option (D) is correct.

2. Time taken by P to complete one round

$$= \frac{120}{4} = 30 \text{ minutes}$$

$$\text{Time taken by Q to complete one round} = \frac{120}{8} = 15 \text{ minutes}$$

$$\text{Time taken by R to complete one round} = \frac{120}{10} = 12 \text{ minutes}$$

LCM of 30, 15 and 12 = 60

Hence, they will meet after 60 minutes.

Hence, option (D) is correct.

3. Let the length of the train = l metre

And the speed of the train = s m/s

According to the question

$$2l = s \times 5 \times 60$$

$$\Rightarrow l = 150s \text{ ---- (i)}$$

$$l = (s - 2) \times 7 \times 60$$

$$\Rightarrow 150s = 420s - 840$$

$$\Rightarrow 270s = 840$$

$$\Rightarrow s = \frac{840}{270}$$

$$\Rightarrow s = 3.11 \text{ m/s}$$

$$\Rightarrow s = 3.11 \times \frac{18}{5} = 11.2 \text{ km/h}$$

Hence, option (D) is correct.

4. Let cost price of each of the article = Rs.100

$$\text{Selling price of one article} = 100 \times \frac{120}{100} = \text{Rs.120}$$

$$\text{Selling price of other article} = 100 \times \frac{90}{100} = \text{Rs.90}$$

$$\text{Total cost price} = 100 + 100 = \text{Rs.200}$$

$$\text{Total selling price} = 120 + 90 = \text{Rs.210}$$

$$\text{Profit \%} = \frac{210 - 200}{200} \times 100 = 5\%$$

Hence, option (C) is correct.

5. Profit ratio = Investment by Puneet × Time : Investment by Sumit × Time : Investment by Amit × Time

$$= 11 \times 3 : 16.5 \times 3 : 8.25 \times 3$$

$$= 11 : 16.5 : 8.25 = 44 : 66 : 33 = 4 : 6 : 3$$

Amit's share in profit = $\frac{3}{13} \times 19.5 = \text{Rs. } 4.5 \text{ lakh}$

∴ 50% of Amit's share = $\frac{1}{2} \times 4.5 = \text{Rs. } 2.25 \text{ lakh}$

Hence, option B is correct.

6. **Traditional approach:**

$$CI = 48000 \times \frac{115}{100} \times \frac{115}{100} \times \frac{115}{100} - 48000$$

$$= 73002 - 48000 = \text{Rs. } 25002$$

$$SI = \frac{48000 \times 15 \times 3}{100} = \text{Rs. } 21600$$

Required difference = Rs. (25002 - 21600) = Rs. 3402

Smart approach:

We know that, for three years

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

$$CI - SI = 48000 \left(\frac{15}{100} \right)^2 \times \frac{315}{100}$$

$$\Rightarrow CI - SI = 48000 \times \frac{9}{400} \times \frac{315}{100}$$

$$\Rightarrow CI - SI = \text{Rs. } 3402$$

Hence, option (C) is correct.

7. Let the amount of alcohol and water in the initial mixture is $5x$ litres and $6x$ litres respectively.

$$\text{Amount of alcohol in 33 litres of mixture} = \frac{5}{11} \times 33 = 15 \text{ litres.}$$

$$\text{Amount of water in 33 litres of mixture} = \frac{6}{11} \times 33 = 18 \text{ litres.}$$

According to the question

$$\frac{5x - 15}{6x - 18 + 33} = \frac{5}{17}$$

$$\Rightarrow \frac{5x - 15}{6x + 15} = \frac{5}{17}$$

$$\Rightarrow 85x - 255 = 30x + 75$$

$$\Rightarrow 55x = 330$$

$$\Rightarrow x = \frac{330}{55}$$

$$\Rightarrow x = 6$$

Amount of alcohol in the initial mixture = $5x = 5 \times 6 = 30$ litres.

Hence, option (A) is correct.

8.

$$\text{Circumference of wheel} = 2\pi r = 2 \times \frac{22}{7} \times \frac{70}{2}$$

$$= 220\text{cm} = 2.2\text{m} \text{ Distance covered per minute} = 400 \times 2.2 = 880\text{m}$$

$$\text{Distance covered per second} = \frac{880}{60} \text{m/s}$$

$$\text{Therefore Speed of car (in km/hr)} = \frac{880}{60} \times \frac{18}{5}$$

$$= 52.8 \text{ km/hr}$$

Hence, option A is correct.

9. Red = 2

Green = 3

Yellow = 4

Total = 9

$$\text{Reqd. probability} = \frac{{}^3C_3 + {}^4C_3}{{}^9C_3}$$

$$= \frac{1 + 4}{84} = \frac{5}{84}$$

Hence, option C is correct.

10. CP = Rs.1200

$$\text{MP} = 1200 \times \frac{120}{100} = \text{Rs. } 1440$$

$$\text{SP} = 1440 \times \frac{88}{100} \times \frac{92}{100} = \text{Rs. } 1165.824$$

Hence, option D is correct.



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