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Mixed Maths Questions for LIC AAO Pre Exam

LIC AAO Quant Quiz 9

Directions: Read the following questions carefully and choose the right answer.

1. In how many different ways letters of the word "EDUCATION" can be arranged such that all the consonants come together?

A. 18720 B. 18270 C. 17280

D. 12780 E. None of these

2. The area of a square is equal to the area of a rectangle of length 28 cm and breadth 7 cm. Find the circumference of the circle whose diameter is equal to the side of the square.

A. 110 cm B. 44 cm C. 66 cm

D. 88 cm E. None of these

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3. Compound interest on a certain sum at the rate of 12% per annum after 2 years is Rs.142464. Find the simple interest on that sum at the rate of 15% per annum for 7 years.

A. Rs. 588000 B. Rs. 568000 C. Rs. 586000

D. Rs. 566000 E. None of these

4. A bag contains 2 red, 5 green and 4 yellow balls. 4 balls are drawn at random, find the probability that out of four balls at least 3 balls are yellow.

A. 19/330 B. 4/165 C. 29/330

D. 8/165 E. None of these

5. In a company there are 78000 employees out of which males and females are in the ratio 7 : 6. Out of the males 35% are working as HR and out of females 25% are working as HR. Find the total number of employees working as HR in the company.

A. 25700 B. 27700 C. 23500

D. 23700 E. None of these

6. Cost price of two articles is Rs. 560 each. The shopkeeper sold one article at a profit of 24% and another article at a loss of 18%. Find the overall profit/loss percent.

A. 5 % profit B. 3% loss C. 5% loss

D. 3% profit E. None of these

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7. A car can travel a distance of 450 km in 15 hours and a bus can travel a distance of 540 km in 30 hours. Speed of a truck is half of the sum of the speeds of the car and the bus. Find the distance travelled by the truck in 5 hours.

A. 115 km B. 120 km C. 130 km

D. 125 km E. None of these

8. 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

9. Two trains are running on parallel lines in the same direction at speeds of 60 km/h and 35 km/h respectively. The faster train

crosses a man inside the slower train in 54 seconds. If the length of the slower train is 4/5th of the faster train, find the length of the slower train.

A. 250 m B. 375 m C. 450 m

D. 396 m E. None of these

10. The ratio of the present ages of Ramu and his mother is 2 : 5 and that of his mother and his father is 5 : 6. After 2 years the ratio of the ages of Ramu to that of his father will be 4 : 11. What is the present age of Ramu?

A. 28 years B. 42 years C. 14 years

D. 35 years E. None of these

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Correct answers:

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

Explanations:

1.

Number of consonants = 4

Consonants can be arranged among themselves in 4! Ways.

E, U, A, I, O and (DCTN) can be arranged in 6! Ways

Required number of ways = 6! × 4! = 720 × 24 = 17280

Hence, option C is correct.

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2.

Area of square = $(\text{side})^2$

And, Area of rectangle = 28 × 7 = 196 cm^2

Now,

$(\text{side})^2$ = 196 cm^2

∴ side of square = 14 cm

Then, Radius of circle

$= \frac{\text{side of square}}{2} = \frac{14}{2} = 7\text{cm}$

⇒ Radius of circle = 7cm

We know that,

Circumference of circle = 2π (Radius)

$= 2 \times \frac{22}{7} \times 7$

$= 44$ cm

Hence, option B is correct.

3.

We know that

$CI = P\left[\left(1 + \frac{r}{100}\right)^2 - 1\right]$

$\Rightarrow 142464 = P\left[\left(1 + \frac{12}{100}\right)^2 - 1\right]$

$\Rightarrow 142464 = P\left[\left(1 + \frac{3}{25}\right)^2 - 1\right]$

$\Rightarrow 142464 = P\left[\left(\frac{28}{25}\right)^2 - 1\right]$

$\Rightarrow 142464 = P\frac{784 - 625}{625}$

$\Rightarrow P = 142464 \times \frac{625}{159}$

$\Rightarrow P = Rs.560000$

$SI = \underline{P \times r \times t}$

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100

Hence, reqd. SI = $\frac{560000 \times 15 \times 7}{100}$ = Rs.588000

Hence, option A is correct.

4.

Red = 2

Green = 5

Yellow = 4

Total = 11

Reqd. probability = $\frac{{}^{4}C_3 \times {}^{7}C_1 + {}^{4}C_4}{{}^{11}C_4}$

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= $\frac{4 \times 7 + 1}{330}$

= $\frac{29}{330}$

Hence, option C is correct.

5.

Number of males in the company

= $\frac{7}{13} \times 78000 = 42000$

Number of males working as HR

$= \frac{35}{100} \times 42000 = 14700$

Number of females in the company

$= \frac{6}{13} \times 78000 = 36000$

Number of females working as HR

$= \frac{25}{100} \times 36000 = 9000$

Total number of employees working as HR = 14700 + 9000 = 23700

Hence, option D is correct.

6.

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Cost price of both the articles = 560 × 2 = Rs.1120

Selling price of one article

$= 560 \times \frac{124}{100} = \text{Rs. } 694.4$

Selling price of another article

$= 560 \times \frac{82}{100} = \text{Rs. } 459.2$

Selling price of both the articles = 694.4 + 459.2 = Rs.1153.6

Profit = 1153.6 – 1120 = Rs.33.6

Profit percent $= \frac{33.6}{1120} \times 100 = 3\%$

Hence, option D is correct.

7.

Speed of the car = $\frac{450}{15}$ = 30 km/h

Speed of the bus = $\frac{540}{30}$ = 18 km/h

Sum of the speeds of the car and the bus = (30 + 18) = 48 km/h

Speed of the truck = $\frac{48}{2}$ = 24 km/h

Distance travelled by the truck in 5 hours = speed × time = 24 × 5 = 120 km

Hence, option B is correct.

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8.

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

Amount of alcohol in 33 litres of mixture

$= \frac{5}{11} \times 33 = 15$ litres.

Amount of water in 33 litres of mixture

$= \frac{6}{11} \times 33 = 18$ 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.

9.

According to the question,

$(60 - 35) \times \frac{5}{18} = \frac{D}{54}$

D = 375 m Length of the faster train = 375m,

Length of the slower train = $375 \times \frac{4}{5} = 300$ m

Hence, option E is correct.

10.

Ratio of the present ages:

Ramu : mother = 2:5

Mother : father = 5 : 6

Ramu : mother : father = 2 : 5 : 6

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According to the question

$$\frac{2x + 2}{6x + 2} = \frac{4}{11}$$

$\Rightarrow 22x + 22 = 24x + 8$

$\Rightarrow 2x = 14$

$\Rightarrow x = 7$

Present age of Ramu = $2x = 2 \times 7 = 14$ years

Hence, option C is correct.

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