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# Mixed Maths Questions for LIC AAO Exam.

## LIC AAO Maths Quiz 16

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

1. There are three groups A, B and C. The average of group A is 93. The average of group B is 86. The average of group C is 95. The average of group A and B is 89, the average of group B and C is 91. Find the average of the three groups?

- A. 93                      B. 97                      C. 86.5                      D. 91.5                      E. None of these

2. A box has a total of 84 bottles of red, yellow and blue color. If the red color bottles are twice the yellow color bottles and blue color bottles are one fourth of the red color bottles, how many yellow color bottles are present in the box?

- A. 20                      B. 22                      C. 18                      D. 24                      E. None of these

3. The sum of the ages of Aliya, Rohini, Aruna and Manvi is 106 years. Two years ago, Rohini was thrice as old as Aruna and three years later, Aliya will be thrice as old as Manvi. What will be the sum of the ages of Aruna and Manvi, four years hence?

- A. 46 years                      B. 38 years                      C. 34 years                      D. 50 years                      E. None of these

4. A regular hexagon is inscribed in a circle having circumference 176 cm. Find the area uncommon to the circle and hexagon (in  $\text{cm}^2$ )

- A. 500                      B. 427                      C. 335                      D. 298                      E. 361

5. A man gave 50% of his savings of Rs 67,280 to his wife and divided the remaining sum between his two sons A and B of 14 and 12 years of age respectively. He divided it in such a way that each of his sons, when they attain the age of 18 years, would receive the same amount at 5% compound interest per annum. The share of B was

- A. 16500                      B. 15000                      C. 15020                      D. 16000                      E. None of these

6. Monu and Ranu can do a piece work individually in 4 hours and 12 hours respectively. Monu starts the work alone at 6 a.m. and then, Monu and Ranu work alone, alternately for one hour each. When will the work be completed?

- A. 12 a.m.                      B. 9 a. m.                      C. 12.30 a.m.                      D. 12.00 p. m.                      E. None of these

7. Dipika, while rowing at her normal rate, can travel 12 km downstream in a river in 6 hours less than it takes her to cover the same distance upstream. However, when she rows with twice her normal rate, she takes only one hour less going 12 km downstream than the 12 km travel of upstream. What is the speed of the current in km per hour?

- A.  $3\frac{2}{3}$  kmph      B.  $2\frac{3}{5}$  kmph      C.  $2\frac{2}{3}$  kmph      D.  $2\frac{1}{3}$  kmph      E. None of these

8. If an annual function, 20% of the ladies wore Suits, 40% ladies wore Sarees and the remaining 50 wore other than these. Whereas, 60% of men wore Suits and a total of 200 men came to the party. How many persons in the function wore Suits?

- A. 100      B. 125      C. 145      D. Can't be determined      E. None of these

9. Naved, Raunak and Maliksha start from the same place and travel in the same direction at the speed of 40 km, 50 km and 80 km per hour respectively. Raunak starts two hours after Naved. If Raunak and Maliksha overtake Naved at the same time, how many hours after Naved, did Maliksha start?

- A. 4 hours      B. 3 hours      C. 6 hours      D. 5.5 hours      E. 5 hours

10. A retailer gets a profit of 18% on an item. If he buys the item at 8% less and sells it for 7 rupees less, he stills gets 18% profit. Find the actual CP of the item.

- A. Rs. 62.35      B. Rs. 74.46      C. Rs. 67.43      D. Rs. 57.21      E. None of these

**Correct Answers:**

<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>
D	D	C	B	D	D	C	C	E	B

## Explanations:

1. By the alligation Method:

<b>X</b>	<b>Y</b>	<b>Y</b>	<b>Z</b>
93	86	86	95
\	/	\	/
	89		91
/	\	/	\
3	4	4	5

⇒ Ratio X : Y : Z = 3 : 4 : 5

Therefore average of all three classes =  $\frac{(93 \times 3 + 86 \times 4 + 95 \times 5)}{(3 + 4 + 5)}$

$$= \frac{(279 + 344 + 475)}{12} = \frac{1098}{12} = 91.5$$

Hence, option D is correct.

2. Let there be x number of yellow colour bottles in a box.

∴ Number of red color bottles = 2x

And number of blue color bottles =  $\frac{1}{4}(2x) = \frac{1}{2}x$

$$\therefore 2x + x + \frac{1}{2}x = 84$$

$$\therefore 7x = 168$$

$$\therefore x = 24$$

Thus, there are 24 yellow colour bottles.

Hence, option D is correct.

3. Aliya + Rohini + Aruna + Manvi = 106 ... (i)

$$(Rohini - 2) = 3(Aruna - 2)$$

$$3Aruna - Rohini = 4 \quad \dots \text{(ii)}$$

$$\text{Also, } (Aliya + 3) = 3(\text{Manvi} + 3)$$

$$\therefore Aliya - 3\text{Manvi} = 6 \quad \dots \text{(iii)}$$

Adding (ii) from (iii)

$$(Rohini + Aliya) - 3(Aruna + \text{Manvi}) = 2 \quad \dots \text{(iv)}$$

Subtracting (iv) from (i);

$$4(Aruna + \text{Manvi}) = 104$$

$$\therefore Aruna + \text{Manvi} = 26$$

$$\text{Sum of their ages, four years hence} = 26 + 4 + 4 = 34$$

Hence, option C is correct.

4. Circumference of the circle =  $2\pi r = 176$  cm.

$$\therefore r = 28 \text{ cm}$$

$$\therefore \text{Area of circle} = \pi r^2 = \frac{22}{7} \times (28)^2 = 2464 \text{ sq.cm}$$

When a hexagon is inscribed in circle, radius of the circle = side of the hexagon = 28 cm.

$$\therefore \text{Area of the hexagon} = \frac{3\sqrt{3}}{2} \times \text{side}^2 = \frac{3\sqrt{3}}{2} \times 28^2 \approx 2037$$

$$\therefore \text{Area uncommon to both figures} = 2464 - 2037 = 427 \text{ cm}^2$$

Hence, option B is correct.

5. Total Income = 67,280

After giving 50% salary to his wife the man is left with an amount = 33,640

Let's assume the man gave Rs.  $x$  to A. Therefore B will get Rs.  $(33640 - x)$ .

$$\begin{array}{ccc} & 33640 & \\ \swarrow & & \searrow \\ 14 \text{ years A} & & 12 \text{ years B} \\ \swarrow & & \searrow \\ x & & (33640 - x) \end{array}$$

Now, as per the question A & B will be getting an equal amount with CI at 5% rate per year at the 18th year.

$$\Rightarrow x \left(1 + \frac{5}{100}\right)^4 = (33640 - x) \left[1 + \frac{5}{100}\right]^6$$

$$\Rightarrow \frac{x}{(33640 - x)} = \frac{\left(1 + \frac{5}{100}\right)^6}{\left(1 + \frac{5}{100}\right)^4}$$

$$\Rightarrow \frac{x}{(33640 - x)} = \left(\frac{21}{20} \times \frac{21}{20}\right)$$

$$\Rightarrow 400x = 33640 \times 441 - 441x$$

$$\Rightarrow 841x = 33640 \times 441$$

$$x = \frac{33640 \times 441}{841} = 40 \times 441 = 17640/-$$

Therefore, at the time of division of money, B would have got a sum =  $(33640 - 17640) = \text{Rs. } 16000$

Hence, option D is correct.

6. Let the total work = 24 units.

Hence, Monu can do  $\frac{24}{4} = 6$  units per hour

And Ranu can do  $\frac{24}{12} = 2$  units per hour

From 6 a.m. to 7 a.m., Monu works alone and finishes 6 units.

From 7 a.m. to 8 a.m., Ranu works alone and finishes 2 units.

Hence, in two hours from 6 a.m. to 8 a.m., work done =  $6 + 2 = 8$  units

Hence, three such chunks of 2 hours are need to complete the entire work of 24 units

Hence, total work is completed in 6 hours i.e. at 12 p.m.

Hence, option D is correct.

7. Let the speed of the boat in still water be  $x$  kmph and the speed of the current be  $y$  kmph.

Then,  $\frac{12}{x-y} - \frac{12}{x+y} = 6$

or,  $6(x^2 - y^2) = 24y$

or,  $x^2 = 4y + y^2$  ...**(i)**

Now, speed of boat =  $2x$

Then,  $\frac{12}{2x-y} - \frac{12}{2x+y} = 1$

Or,  $x^2 = 6y + \frac{y^2}{4}$  ....**(ii)**

Now, on equating equation (i) and (ii), we get

$$6y + \frac{y^2}{4} = 4y + y^2$$

$$\Rightarrow 24y + y^2 = 16y + 4y^2$$

$$\Rightarrow 3y^2 = 8y$$

$$\therefore y = \frac{8}{3} \text{ kmph} = 2\frac{2}{3} \text{ kmph}$$

Hence, option C is correct.

**8.**

$$\text{Total ladies} = \frac{50}{40} \times 100 = 125$$

Total ladies wearing Suits = 20% of 125 = 25

$$\text{Total men wearing suits} = \frac{200 \times 60}{100} = 120$$

Hence, total persons wearing suits = 145

Hence, option C is correct.

**9.** Distance covered by Naved in 2 hours =  $2 \times 40 = 80$  km

$$\text{Time taken by Raunak to overtake Naved} = \frac{80}{50 - 40} = 8 \text{ hours}$$

Distance covered by Raunak in these 8 hours =  $50 \times 8 = 400$  km

$$\text{Time taken by Maliksha to cover 400 km distance} = \frac{400}{80} = 5 \text{ hours}$$

It means that Maliksha starts  $2 + 8 - 5 = 5$  hours after Naved.

Hence, option E is correct.

**10.** 18 % gain implies  $SP = 1.18CP$

Now, CP is 8% less i.e.  $0.92CP$  and SP is Rs. 7 less i.e.  $SP - 7$ .

Since the profit is still 18%

$$(SP - 7) = 1.18(0.92CP) \text{ where } SP = 1.18CP$$

$$\therefore 1.18CP - 7 = 1.0856CP$$

$$\therefore CP = \text{Rs. } 74.46$$

Hence, option B is correct.



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