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Mixed Maths Questions for LIC AAO Pre Exam

LIC AAO Quant Quiz 4

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

1. Ankur, Bhanu and Chatur can finish an assignment in their company together in 20 days. They started the assignment together and Ankur left it after first 6 days. After next 4 days, Bhanu also left the assignment. Then Chatur completed the remaining three fifth of the assignment in 72 days. How many days would Bhanu alone take to finish the whole assignment?

- A. 15 days B. 30 days C. 45 days
D. 60 days E. None of these

2, Rajeev's present age is $100/3$ % of his father's age and his father's age is half of Rajeev's grandfather's age. The average of the present ages of all of them is $110/3$ years. What was the ratio of their ages 10 years ago?

- A. 1 : 43 : 56 B. 1 : 23 : 56 C. 1 : 23 : 46
D. 1 : 26 : 56 E. None of these

3. Meenu has some money. She can buy 40 books or 90 pens with it. She keeps 20% of the money for food and with the remaining buys 36 pens and some books. Find the number of books she buys.

- A. 15 B. 14 C. 18
D. 16 E. 12

4. A milkman completely fills his 24 liter cistern with two type of milks A and B in the ratio 7 : 5. The cost price of type A milk is Rs.45 per liter. If he sold this mixture at the rate of Rs.56 per liter at a profit of 12%, then find the per liter cost price of type B milk.

A. Rs. 54

B. Rs. 47

C. Rs. 62

D. Rs. 57

E. None of these

5. Out of total members $100/3$ % are in room A and remaining are in room B. If 20 members from room B are shifted to room A, then total members in room A becomes 50% of total members. If 20 members from room A are shifted to room B, then find that total members in room A becomes what per cent of total members?

A. 26.34%

B. 16.67%

C. 12.75%

D. 20.67%

E. None of these

6. From 'A' kg of pure tea a shopkeeper removes A% of the mixture (Either pure tea or adulterated tea) and replaces it with same quantity of adulteration. If he repeated this process once more and now the amount of pure tea remaining in the mixture is (90% of 40% of A) kg, then find the value of A.

A. 60%

B. 50%

C. 40%

D. 30%

E. None of these

7. In an office some persons are officers and some are non-officer. The number of officers is 30. The average salary of officers is Rs.1040 and that of non-officers is Rs.400. If the

average salary of entire staff in office (officers + Non – officers) is Rs.500 per month, then what is the average of total number of employees (officers + Non – officers) in the office?

- A. 49 B. 89 C. 92
D. 96 E. None of these

8. Find the probability that a two-digit number, chosen at random, is a multiple of 4 given that it is also a multiple of 6.

- A. 8/15 B. 9/13 C. 7/14
D. 6/13 E. None of these

9. A principal of Rs. 6120 becomes Rs. 8330 in 2 years when compounded annually at some rate of interest. How much will be the amount if the same principal was compounded half-yearly?

- A. Rs. 8430 B. Rs. 8500 C. Rs. 8300
D. Rs. 8750 E. None of these

10. If the ratio of the speed of a boat in upstream and the speed of the stream is 8 : 1. If the boat can travel 500 km downstream in 20 hours then find the total distance travelled by the boat in still water in the same time?

- A. 425 km B. 459 km C. 441 km
D. 450 km E. None of these

Correct answers:

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

Explanations:

1.

Given :

Chatur complete $\left(\frac{3}{5}\right)^{\text{th}}$ of assignment in 72 days

Therefore,

Chatur could complete the whole assignment in

$$\frac{72 \times 5}{3} = 120 \text{ days}$$

Now,

(Ankur + Bhanu + Chatur) worked for 6 days.

So,

$$\text{Parts of assignment completed in first six days} = \frac{6}{20}$$

Now, according to the question

(Bhanu + Chatur) worked for 4 days

So,

Parts of assignment completed in these four days



$$= 1 - \left(\frac{3}{5} + \frac{6}{20}\right) = 1 - \frac{9}{10} = \frac{1}{10}$$

Therefore,

(Bhanu + Chatur) could complete the whole assignment in $(10 \times 4) = 40$ days

Let Bhanu could complete the whole assignment working alone in x days.
Therefore,

$$\frac{1}{x} + \frac{1}{120} = \frac{1}{40}$$

$$40(120 + x) = 120x$$

$$120x - 40x = 4800$$

$$x = 60$$

Hence, this is the required solution.

Therefore, option D is correct.

2.

Let Rajeev's present age = x

His father's present age = $3x$

Grandfather's present age = $6x$

$$\Rightarrow \frac{x + 3x + 6x}{3} = \frac{110}{3}$$

$$\Rightarrow 10x = 110$$



$$\Rightarrow x = 11$$

Rajeev's present age = 11 years

10 years ago Rajeev's age = 1 year

His father's present age = 33 years

10 years ago = 23 years

His grandfather's present age = 66 years

10 years ago = 56 years

Required ratio = 1: 23: 56

Hence, option B is correct.

3.

Let Meenu has Rs x

For simplification, $x = \text{LCM}(40, 90) = 360$

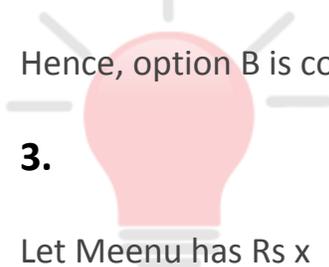
Thus, price of one book = $\frac{360}{40} = \text{Rs. } 9$

Similarly, price of one pen = $\frac{360}{90} = \text{Rs. } 4$

Now, amount left after keeping money for food = Rs. $(360 - 20\% \text{ of } 360)$
= Rs. 288

Price of 36 pens, $P = 4 \times 36 = \text{Rs. } 144$

Amount left = Rs. $(288 - 144) = \text{Rs. } 144$



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Therefore, No. of books Meenu buys = $\frac{144}{9} = 16$

Hence, option D is correct.

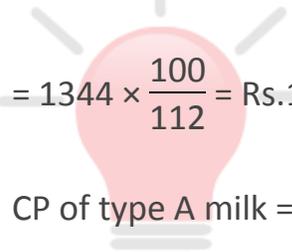
4.

Quantity of type A milk = $24 \times \frac{7}{12} = 14$ liters

Quantity of type B milk = $24 \times \frac{5}{12} = 10$ liters

SP of mixture = $24 \times 56 = \text{Rs.}1344$

CP of mixture when sold at 12% profit

 = $1344 \times \frac{100}{112} = \text{Rs.}1200$

CP of type A milk = $14 \times 45 = \text{Rs.}630$

CP of type B milk = $\text{Rs.} (1200 - 630) = \text{Rs.}570$

Per liter CP of type B milk = $\frac{570}{10} = \text{Rs.} 57$

Hence, option D is correct.

5.

Quantity of type A milk = $24 \times \frac{7}{12} = 14$ liters

Quantity of type B milk = $24 \times \frac{5}{12} = 10$ liters

SP of mixture = $24 \times 56 = \text{Rs.}1344$

CP of mixture when sold at 12% profit

$$= 1344 \times \frac{100}{112} = \text{Rs.}1200$$

CP of type A milk = $14 \times 45 = \text{Rs.}630$

CP of type B milk = Rs. $(1200 - 630) = \text{Rs.}570$

$$\text{Per liter CP of type B milk} = \frac{570}{10} = \text{Rs. } 57$$

Hence, option D is correct.

6.

Initial amount of tea = A kg

Amount of tea removed = A% of A = $A^2/100$

After two operations as given in the question,

Remaining amount of pure tea = (90% of 40% of A)

$$= A \left(1 - \frac{A^2}{100A}\right)^2$$

$$\Rightarrow 0.36A = A \left(\frac{100 - A}{100}\right)^2$$

$$\Rightarrow 10000 \times 0.36A = A(100 - A)^2$$

$$\Rightarrow 3600 = (100 - A)^2$$

$$\Rightarrow 100 - A = 60$$

$$\Rightarrow A = 40$$

Hence, option C is correct.

7.

Let the number of non-officers in office = x

Now, according to question-

$$\Rightarrow 400x + 1040 \times 30 = 500(30 + x)$$

$$\Rightarrow 400x + 1040 \times 30 = 500 \times 30 + 500x$$

$$\Rightarrow 100x = 30(1040 - 500)$$

$$\Rightarrow 100x = 30(540)$$

$$\Rightarrow x = 162$$

$$\text{Reqd. average} = \frac{30 + 162}{2} = 96$$

Hence, option D is correct.

8.

We can use this formula,

$$P(A|B) = \frac{P(A \cap B)}{P(B)}$$

Number of two-digit numbers = 90 (from 10 to 99)

Let A be the event that a two-digit number is divisible by 4 and B be the event that a two-digit number is divisible by 6.

Then, $(A \cap B)$ denotes the event that the number is divisible by both 4 and 6,



i.e it is divisible by L.C.M of 4 and 6 which is 12.

The two-digit numbers divisible by 12 are 12, 24, 36, 48, 60, 72, 84 and 96.
Thus, there are total of 8 such numbers.

$$\therefore P(A \cap B) = \frac{8}{90}$$

And there are 15 such numbers which are divisible by 6 (6, 12.....96)

$$\therefore P(B) = \frac{15}{90}$$

From formula,

$$P(A|B) = \frac{8}{90} \times \frac{90}{15}$$

$$P(A|B) = \frac{8}{15}$$

Hence, option (A) is correct.

9.

Now the formula for amount on compound interest basis can be given as

$$A = P \left(1 + \frac{R}{100}\right)^t$$

Where A = Amount

P = Principal

R = Rate of interest

T= Time period

Now as per our data P = 6120, A = 8330, t = 2 years



$$\therefore 8330 = 6120 \left(1 + \frac{R}{100}\right)^2$$

$$\therefore \frac{8330}{6120} = \left(1 + \frac{R}{100}\right)^2$$

$$\therefore \frac{49}{36} = \left(1 + \frac{R}{100}\right)^2$$

$$\therefore \frac{7}{6} = 1 + \frac{R}{100}$$

$$\therefore R = \frac{100}{6} = 16.67\%$$

Now the amount when the same principal is compounded half-yearly for the same time period can be given as

$$A = 6120 \left[1 + \left(\frac{16.67}{200}\right)^{2 \times 2}\right]$$

$$\therefore A = 6120 \times 1.377$$

$$\therefore A = \text{Rs. } 8430$$

Hence, option A is correct.

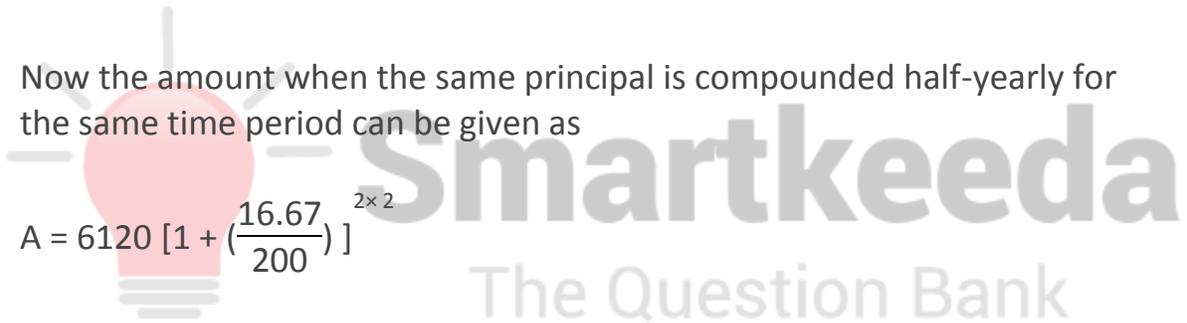
10.

Let the speed of boat in upstream = $8x$ km/hr

And the speed of the stream = x km/hr

Speed of boat in downstream = $\frac{500}{20} = 25$ km/hr

Let the speed of boat in still water = p km/hr



Then, $p + x = 25$ km/hr(i)

$P - x = 8x$, $p = 9x$ (ii)

Put the value of p in the equation (i)

$$10x = 25, x = 2.5$$

From the equation (ii) speed of boat in still water = $9x = 9 \times 2.5 = 22.5$ km/hr

The total distance travelled by the boat in still water in 20 hours = 450 km

Hence, option D is correct.



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