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Mixed Maths Questions for LIC AAO Exam.

LIC AAO Maths Quiz 17

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

1. A wholesaler allows a discount of 20% on the list price to a retailer. The retailer sells at 10% discount on the list price. If the customer paid Rs 108 for an article, what profit is made by the retailer?

A. Rs. 15   B. Rs. 10   C. Rs. 16   D. Rs. 12   E. None of these

2. Aditya and Bhushan invested 10000 each in scheme A and scheme B respectively for 3 years. Scheme A offers Simple interest @ 12% per annum and scheme B offers compound interest @ 10%. After 3 years, who will have larger amount and by how much?

A. Aditya, 280   B. Bhushan, 280   C. Adiya, 290   D. Bhushan, 290   E. None of these

3. A Man is running in a tunnel at a speed of 20m/s and he takes 10 minutes to cross the tunnel. When he is halfway through the tunnel, a car enters the tunnel in the direction he is running. Both of them reached the end of the tunnel together. What is the speed of the car?

A. 25 m/s   B. 30 m/s   C. 40 m/s   D. 80 m/s   E. Data insufficient

4. The radii of two cones are equal. If their slant height be in the ratio 7 : 8, what is the ratio of their Curved Surface Areas?

A. 49 : 64   B. 64 : 49   C. 7 : 8   D. Can't be determined   E. None of these

5. A box contain 4 violet pens, 5 green pens and 6 white pens. A pen is drawn at random from the box. What is the probability that the pen drawn is either violet or green?

A. $\dfrac{2}{5}$ B. $\dfrac{3}{5}$ C. $\dfrac{1}{5}$ D. $\dfrac{7}{5}$ E. None of these

6. Shaurya and Shravan started a business with a capital of Rs. 1,00,000, in which Shaurya contributed 40% and the rest was contributed by Shravan. After 8 months, Shravan withdrew Rs. 5000 Since Shravan manages the company, so it was agreed that out of the profits earned, Shravan would get 4% as Salary. Their business earned a profit of Rs. 29500. What is the total amount that Shravan earned?

A. 16720   B. 17980   C. 15460   D. 18960   E. None of these

7. A solution weighs 800 gm and has 38% solvent. How many gms of solvent should be added to it to raise the solvent percentage to 60?

A. 678   B. 509   C. 280   D. 440   E. None of these

8. The average age of a family of 5 members is 24 years. If the age of the youngest member is 8 years, what was the average age of the family at the birth of the youngest member?

A. 16   B. 20   C. 22   D. 24   E. None of these

9. A and B undertake to do a piece of work for Rs 500. A alone can do it in 20 days while B alone can do it in 25 Days. They both work for 8 days together after which B leaves, So A does the remaining work himself. What is the share of B in the earnings?

A. Rs. 160   B. Rs. 200   C. Rs. 240   D. Rs. 280   E. None of these

10. At the election of the class monitor between two students, the student who got 52% of the votes cast won by 8 votes. What is the total number of students who were absent that day if 4/5th of the total students were present that day assuming everybody present voted?

A. 50   B. 40   C. 44   D. 48   E. None of these
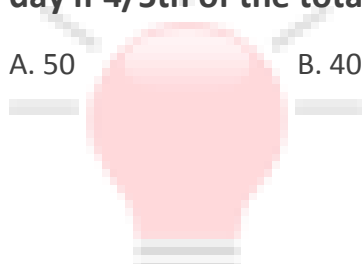
Correct Answers:

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

Explanations:

1. Let the list price be x

So the discount offered by the retailer is 0.1x and the SP becomes 0.9x

Since SP given is 108, equating we get

0.9x = 108

x =120

Since the wholesaler gives 20% discount on the list price, it means he sells the product at 80% of the list price which is

80% of 120 = 96

This becomes CP for the retailer

So Profit earned by the retailer is 108 – 96 = Rs. 12

Hence, option D is correct..

2. Lets first calculate the total rate % that Aditya will have after 3 years:

As per the question Aditya invested at rate of 12% pa simple interst

So, for 3 years tenure he will get = 12 × 3 = 36%

And the amount that Bhushan invested at rate of 10% pa compound interest

By net% effect formula, we can calculate the total perecntage for 3 years tenure = 33.1% **(sub details)**

So, the difference between SI and CI = 36% – 33.1% = 2.9% (SI is more)

Here Aditya will get, 2.9% of 10000 = 290

So Aditya will have Rs. 290 more than Bhushan.

Sub-details:-

Net% effect = x + y = $\dfrac{xy}{100}$%

For the first 2 years: Here, x = y = 10%= 10 + 10 = $\dfrac{10 \times 10}{100}$ = 21%

And for the next year: Here x = 21% and y = 10% = 21 + 10 = $\dfrac{21 \times 10}{100}$ = 33.1%

Hence, option C is correct.

3. This question requires no calculation

At the time the car enters the tunnel, the man is halfway into the tunnel. The time in which the man completed the other half of the tunnel, the car covered the whole tunnel. So it means that in the given time, car covered twice the distance that the man covered.

Distance = Speed × time

Since time is time taken is same in both the cases, it must be the speed.

So it is established that speed of car is twice that of the man

Speed of car = 2 × 20m/s = 40 m/s

Hence, option C is correct.

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4. There is no need for calculation here.
Curved Surface Area can be calculated as – π × radius × slant height
We can see that CSA is directly proportional to the single power of slant height.
Since radii are equal, CSA are in proportion of the respective slant heights i.e 7 : 8.
Hence, option C is correct.

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5. Total number of pens = 4 + 5 + 6 = 15

∴ **N(s)** = Number of ways of choosing one pen from 15 = $^{15}C_1$ = 15

P(Getting violet or Green pen) = $\dfrac{4}{15} + \dfrac{5}{15} = \dfrac{9}{15} = \dfrac{3}{5}$

Hence, option B is correct.

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6. Profits are distributed in the money × time product ratio
So the money × time product of both are:
Shaurya: 40000 × 12 = 480000
Shravan: (60000 × 8) + (55000 × 4) = 700000
The total of money × time product is 480000 + 700000 = 1180000
Now let's take the profit part
Firstly we have to give 4% of the total profit to Shravan for his managerial role
4% of 29500 = 1180
We are now left with 29500 − 1180 = 28320
As per question we have to find out Shravan's share only

$28320 \times \dfrac{700000}{1180000} = 16800$

So total amount earned by Shravan = 16800 + 1180 = 17980

Hence, option B is correct.

7. Quantity of solvent in 800 gm = 0.38 × 800 = 304 gm

Let x gm of solvent be added. Hence, solvent now becomes 60% of the solution.

∴ (x + 304) = 0.6(x + 800) = 0.6x + 480

∴ 0.4x = 176 i.e. x = 440 gm

Hence, option D is correct.

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8. Since the average age of the family is 24 years and number of members is 5, the total age of the family becomes:

24 × 5 = 120

Since the age of the youngest child is 8 years, the total age accrued since its birth is = 8 × 5 = 40

The total age before the biirth of the child was 120 – 40 = 80

At that time since the child was not born so there were only 4 members of the family

So average age was 80/4 = 20.

Hence, option B is correct.

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9. Let the total work be 100%

A can do 100% work in 20 days So %age of work done by him in 1 day = $\dfrac{100}{20}$ = 5%

B can do 100% work in 25 days So %age of work done by him in 1 day = $\dfrac{100}{25}$ = 4%

% age of work done by them in 1 day = 5 + 4 = 9%

% age of work done by them in 8 days = 9 × 8 = 72%

Remaining work is 100 – 72 = 28%

Which is done by A

So total %age work done by A is 8 × 5 = 40+ 28 = 68%

And total %age of work done by B = 100 – 68 = 32%

Since total earning is 500, total earning by B is = $\dfrac{32}{100}$ × 500 = 160

Hence, option A is correct.

10. Since the winner got 52 %, the loser must have gotten 48% votes.

So the % of votes b/w the winner and the loser is 52% – 48% = 4%

Now, since the number of votes that the winner got more than the loser is 8 votes, the total votes cast that day were
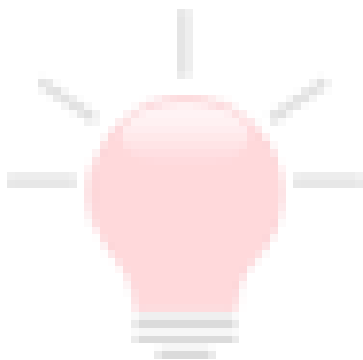
$$= \frac{8}{4} \times 100 = 200$$

And since there were 4/5th of the total students present that day, total number of students are

$$= 200 \times \frac{5}{4} = 250$$

So the number of students who were absent that day were = 250 – 200 = 50 students

Hence, option A is correct.