IBPS PO Pre Maths Questions for IBPS Clerk, IBPS PO Pre, IBPS SO Pre, SBI Clerk, SBI PO Pre and RRB Scale I Pre

IBPS PO Pre Maths Quiz 5

Directions: Study the following question carefully and choose the right answer given beside.

1. In a 1500 m race, Chaitali beats Vrunali by 100 m and in 1200 m race, Vrunali beats Krutika by 75 m. If Chaitali and Krutika are compared, then for how much m Chaitali will beat Krutika in 900 m race?

A. 115 m
B. 112.5 m
C. 110 m
D. 120 m
E. 135 m

2. Ajay walked 12 km to reach the station from his house. Then he boarded in a train and reached his destination. The average speed of the entire journey was 62 kmph and he took a total time of 6 hours. If the average speed of train was 120 kmph, then what is the ratio of walking speed of Ajay to the speed of train?

A. 1 : 30
B. 1 : 60
C. 2 : 35
D. 2 : 65
E. None of these

3. A certain amount of money is lent out at compound interest at the rate of 20% per annum for two years, compounded annually. It would give Rs. 482 more if the amount is compounded half yearly. Find the principle.

A. Rs. 30000
B. Rs. 10000
C. Rs. 15000
D. Rs. 25000
E. Rs. 20000

4. In a train, there are three coaches numbered 1 to 3. In the 1st coach the chairs are numbered 101 to 130, in the 2nd coach the chairs are numbered 201 to 220 and in the 3rd coach the chairs are numbered 301 to 330. The chair occupancy was 50% in 1st coach, 80% in the 2nd coach and 40% in the 3rd coach. The chairs charges are Rs.200, Rs.150 and Rs.300 in each of the coach respectively. Then find the average income per chair in the train?

A. Rs. 112.5   B. Rs. 217.4   C. Rs .128.5

D. Rs. 231.4   E. None of these

5. The income tax department has changed the method of calculating the tax amount from a flat tax of 10% on the taxable income to a fixed charge of Rs. 20,000 plus 5% tax on the taxable income exceeding Rs. 2,00,000. If an individual's tax amount as per the new calculation is Rs.5,000 less than that found by using the old formula, what is his taxable income?

A. Rs. 2,88,000   B. Rs. 2,92,000   C. Rs. 3,00,000

D. Rs. 2,78,000   E. Rs. 3,25,000

6. A milkman makes 80% profit by selling milk mixed with water at Rs. 2/- litre. Compute the ratio of milk and water in the sold mixture if the cost price of Re. 1/- litre pure milk is 100/9.

A. 9 : 1   B. 1 : 9   C. 7 : 8

D. 8 : 7   E. None of these

7. 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

8. 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

9. 20 men, 12 women and 18 boys were given a project of doing 3960 designs of a building in 5 days. The ratio of the number of designs made by them respectively in 1 day is 3 : 2 : 1. If on the 1st day all of them worked, on the 2nd day 4 women and 6 boys went absent and on the 3rd day, 6 men and 10 boys

went absent but still the work got finished on the 3rd day. Then find the number of designs designed by them on the 3rd day?

A. 1021   B. 1110   C. 1621
D. 1210   E. None of these

10. Rohit can row a boat 65Km upstream and 130Km downstream in 23 hours, whereas he can swim 45Km upstream and 104Km downstream in 17 hours. Find the speed of boat in still water and the speed of stream.

A. 4km/h, 9km/h   B. 8km/h, 5km/h   C. 9km/h, 4km/h
D. 5km/h, 8km/h   E. 10km/h, 3km/h

Correct answers:

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

Explanations:

1.

Chaitali can beat Vrunali by 100 m in 1500 m race.

Hence, when Chaitali covers 1500 m, Vrunali covers 1400 m.

So when Chaitali covers 900 m, Vrunali will cover 840 m.

Similarly, when Vrunali covers 1200 m, Krutika covers 1125 m.

So, when Vrunali covers 840 m, Krutika will cover 787.5 m.

∴ Chaitali will beat Krutika by 112.5 m.

Hence, option B is correct.

2.

Let the time travelled in train be 'x' hours

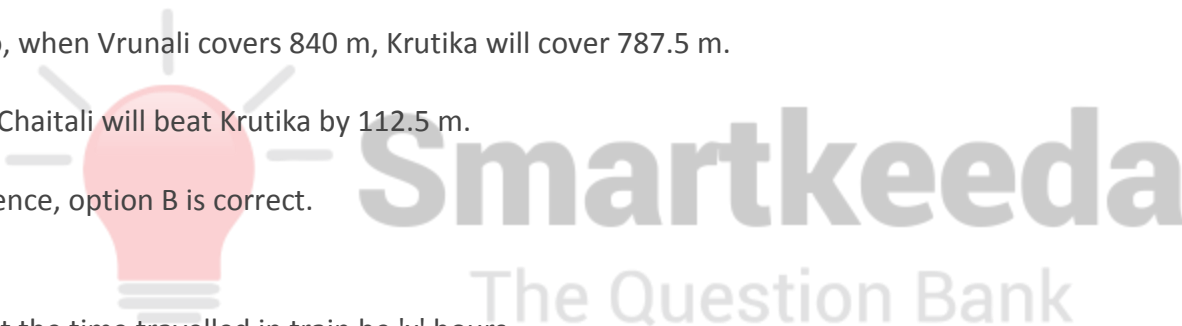Total distance = 62 × 6 = 12 + 120 × x

⇒ 372 = 12 + 120x

⇒ x = 3

So, Ajay walked for (6-3) = 3 hours

Walking speed of Ajay

$= \dfrac{\text{Distance covered by walking}}{\text{Time taken by walking}} = \dfrac{12}{3} = 4$ kmph

Required ratio = 4 : 120 = 1 : 30

Hence, option A is correct.

3.

When compounded annually, the amount received at the end of the period is A

$$= P \left(1 + \frac{r}{100}\right)^n$$

When compounded half yearly, the amount received at the end of the period is A

$$= P\left(1 + \frac{r/2}{100}\right)^{2n}$$

Let the principle be P.

Interest on this amount when compounded annually at the rate of 20% per annum = P $[(1.20)^2 - 1]$

Interest on this amount when compounded half yearly = P $[(1.10)^4 - 1]$

The difference between the two is Rs. 482

∴ P $[(1.10)^4 - 1] - P [(1.20)^2 - 1] = 482$

∴ P $[1.4641 - 1.44] = 482$

∴ P = Rs. 20,000

Hence, option E is correct.

4.

Number of chairs in 1st, 2nd and 3rd coaches are 30, 20 and 30 respectively.

Total chairs = 30 + 20 + 30 = 80

Total occupied chairs in 1st coach = 50% of 30 = 15

Total occupied chairs in 2nd coach = 80% of 20 = 16

Total occupied chairs in 3rd coach = 40% of 30 = 12

Average income = $\dfrac{15 \times 200 + 16 \times 150 + 12 \times 300}{80}$ = 112.5

Hence, option A is correct.

5.

Number of chairs in 1st, 2nd and 3rd coaches are 30, 20 and 30 respectively.

Total chairs = 30 + 20 + 30 = 80

Total occupied chairs in 1st coach = 50% of 30 = 15

Total occupied chairs in 2nd coach = 80% of 20 = 16

Total occupied chairs in 3rd coach = 40% of 30 = 12

Average income = $\dfrac{15 \times 200 + 16 \times 150 + 12 \times 300}{80}$ = 112.5

Hence, option A is correct.

6.

It is given that selling price of mixture is S mix = Rs 2

And Profit percentage on this S mix = 80%
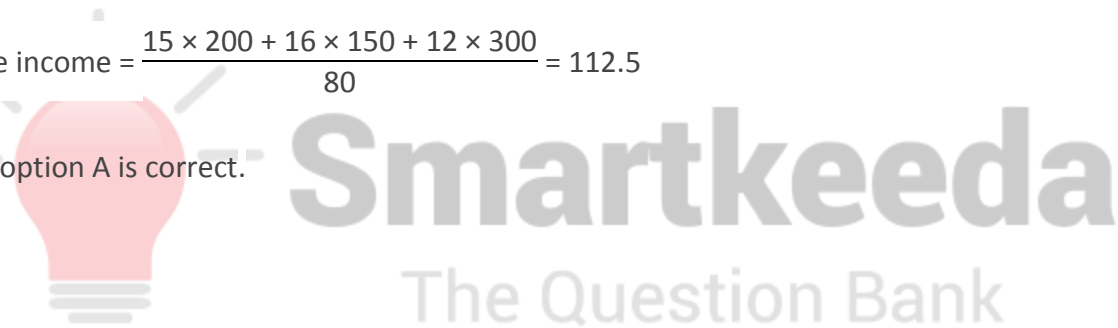
So, cost price of mixture C mix = $\dfrac{100 \times 2}{180} = \dfrac{10}{9}$

Cost of milk given is $\dfrac{100}{9}$

and we find that cost of mixture is 10% of cost of pure milk

$= \dfrac{\frac{10}{9}}{\frac{100}{9}} \times 100 = 10\%$

Also, cost of mixture is proportional to the quantity of milk in mixture. Therefore, we can say

that lot of water is mixed in milk to form a mixture due to which price has gone down to 10% of pure milk, which means 90% is water and 10% milk.

So, the ratio of milk to water is 1 : 9.

Hence, option (B) is correct.

7.

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∩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.

8.

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

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

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

$$\therefore A = Rs.\ 8430$$

Hence, option A is correct.

9.

Let the number of designed by men, women and boys in 1 day be 3x, 2x and x respectively.

Designs of building on the 1st day

⇒ 20 × 3x + 12 × 2x + 18 × x

⇒ 102x

On the 2nd day = 20 × 3x + 8 × 2x + 12 × x = 88x

On the 3rd day = 14 × 3x + 12 × 2x + 8 × x = 74x

Now, 102x + 88x + 74x = 3960

⇒ 264x = 3960

⇒ 74x = $\dfrac{3960}{264}$ × 74

⇒ 74x = 1110

Hence, option B is correct.

10.

Upstream, U = Speed of boat – speed of stream

Downstream, D = Speed of boat + speed of stream

$\dfrac{65}{U} + \dfrac{130}{D} = 23$

$\dfrac{45}{U} + \dfrac{104}{D} = 17$

On solving the above two equations, we will get
U = Speed of boat – speed of stream = 5
D = Speed of boat + speed of stream = 13
Thus, Speed of boat = 9 and speed of stream = 4
Hence, option C is correct.