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 6

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

1. 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

2. 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

3. 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. 4 kmph, 9 kmph B. 8 kmph, 5 kmph C. 9 kmph, 4 kmph
D. 5 kmph, 8 kmph E. 10 kmph, 3 kmph

4. An exam was conducted in a state over 222 centers. The average number of applicants per centre was found to be 1560. However, it was later realized that in one centre, the number of applicants was counted as 1857 instead of 1747. What was the correct average number of applicants per centre (upto two decimals)?

A. 1557.87 B. 1558.20 C. 1558.92
D. 1559.51 E. 1559.78

5. A chaiwala has 2 types of mixture of tea with him. In 56 kg of first mixture ratio of tea to impurity is 5 : 2 and in 44 kg of second mixture the ratio of tea to impurity is 3 : 1. If he mixes these two mixture with 17 kg of pure tea in a large container, then find the ratio of tea to impurity in the large container.

A. 10 : 3 B. 3 : 1 C. 73 : 27
D. 5 : 3 E. None of these

6. A military truck covers a distance of 9072 km travelling continuously for 5 days 6 hrs. If it covers 4320 km in half the time, by how much does the speed of the military truck for the remaining part of the journey differ from that for the entire journey?

A. 3.2 kmph more B. 3.2 kmph less C. 3.43 kmph more
D. 3.43 kmph less E. 4 kmph less

7. A group contains 12 males and 15 females out of which 5 males and 7 females are dancers and rest are singers.

A committee of 9 members is to be formed such that the committee contains 4 females and 5 male singers. Find the number of ways in which this can be done.

A. 26988 B. 28665 C. 26868
D. 25668 E. None of these

8. A group contains 12 males and 15 females out of which 5 males and 7 females are dancers and rest are singers.

A committee of 5 members is to be formed. Find the number of ways in which this can be done such that the committee contains at least 3 female singers.

A. 10256 B. 10765 C. 10962
D. 10453 E. None of these

9. In a private company 36% of the total employees are engineers and 66.67 % of total engineers are women. If 40% of the total employees are women, then per cent of men who are not engineers?

A. 50 % B. 60 % C. 70 %
D. 80 % E. None of these

10. Ram starts a business with Rs. 3900. After 3 months, Shayam joins as a partner with a capital of Rs. 4200 again after some months Mohan joins as a partner with a capital of Rs. 6500. The total profit of one year is Rs.2900 but Mohan already has withdrawn Rs. 100 per month from his profit so the remaining profit was divided in the ratio of 6: 6: 1 respectively. Find for how many months does Mohan join?

A. 3 months
B. 4 months
C. 5 months
D. 2 months
E. Can't be determined

Correct answers:

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

Explanations:

1.

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.

2.

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

$\Rightarrow 20 \times 3x + 12 \times 2x + 18 \times x$

$\Rightarrow 102x$

On the 2nd day = $20 \times 3x + 8 \times 2x + 12 \times x = 88x$

On the 3rd day = $14 \times 3x + 12 \times 2x + 8 \times x = 74x$

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

$\Rightarrow 264x = 3960$

$\Rightarrow 74x = \frac{3960}{264} \times 74$

$\Rightarrow 74x = 1110$

Hence, option B is correct.

3.

Upstream, U = Speed of boat – speed of stream

Downstream, D = Speed of boat + speed of stream

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

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

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.

4.

Number of applicants that have been counted extra = 1857 − 1747 = 110

Hence, decrease in average = $\frac{110}{222}$ = 0.495

∴ Correct average = 1560 − 0.495 = 1559.505 = 1559.51

Hence, option D is correct.

5.

In 56 kg of first mixture, Tea = 56 × $\frac{5}{7}$

= 40 kg and impurity = 56 – 40 = 16 kg
In 44 kg of second mixture, Tea = 44 × $\frac{3}{4}$
= 33 kg and impurity = 44 – 33 = 11 kg

In large container quantity of pure tea = 40 + 33 + 17 = 90 kg

In large container quantity of impurity = 16 + 11 = 27 kg

Required ratio = 90 : 27 = 10 : 3

Hence, option A is correct.

6.

Average speed = $\frac{\text{Total Distance travelled}}{\text{Total time taken}}$

Total time = 5 day + 6 hours = 126 hours
Average speed = $\frac{9072}{126}$ = 72 km/hr

Remaining part of journey = 9072 – 4320 = 4752 km
Remaining time = $\frac{126}{2}$ = 63 hours

Speed of remaining part of journey
= $\frac{4752}{63}$ = 75.43 km/hr

∴ The speed of the military truck for the remaining part of the journey differ from that for the entire journey
= 75.43 – 72 = 3.43 km/hr

Hence, option C is correct.

7.

Total number of males = 12

Male dancers = 5

Male singers = 7

Total number of females = 15

Female dancers = 7

Female singers = 8

Required number of ways = ${}^{15}c_4 \times {}^{7}c_5 = 1365 \times 21 = 28665$

Hence, option B is correct.

8.

Total number of males = 12

Male dancers = 5

Male singers = 7

Total number of females = 15

Female dancers = 7

Female singers = 8

Required number of ways = ${}^{8}c_3 \times 19c2 + 8c4 \times 19c1 + 8c5$

$= 56 \times 171 + 70 \times 19 + 56$

$= 9576 + 1330 + 56$

$= 10962$

Hence, option C is correct.

9.

Let total employee = 1000x

Women = 400x

Men = 600x

Total engineers = 36% of 1000x = 360x

Female engineers = $360x \times \frac{200}{3 \times 100} = 240x$

Male engineers = 360x – 240x = 120x

Men who are not engineers = 600x – 120x = 480x

Reqd. % = $\frac{480x}{600x} \times 100 = 80\%$

Hence, option D is correct.

10.

The ratio of Ram's: Shayam's: Mohan's share = 3900 × 12 : 4200 × 9 : x × 6500 (let Mohan joins for x months) = 36 : 36 : 5x ..... (i)

The total money, Mohan has withdrawn from his profit in x months = 100 × X = 100X

Remaining = 2900 – 100x, it was divided in the ratio of 6 : 6 : 1 respectively

So Ram's share = $\frac{6}{13} \times (2900 - 100x)$ = Shayam's share

Mohan's share = $\frac{1}{13} \times (2900 - 100x)$

If Mohan had not withdraw Rs. 100 per month then his profit would have been

$\frac{1}{13} \times (2900 - 100x) + 100x$

From the equation (i) , Ram's share: Mohan's share

$$= \frac{36}{5x} = \frac{\frac{6}{13} \times (2900 - 100x)}{\frac{1}{13} \times (2900 - 100x) + 100x)}$$

By solving, x = 3

Hence, option A is correct.