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# High-Level Quantitative Aptitude Questions and Answers for SBI PO 2019, IBPS PO 2019 For Free

## SBI PO PRE MATHS QUIZ 18

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

1. Manu and Rakesh started a business by investing Rs.12000 and Rs.15000 respectively. Ishita joined them with some investment. The time for which they invested their capital is 5 years, 6 years and 8 years respectively. The total profit occurred from the business is Rs.28382 out of which share of Rakesh is Rs.11106. Find the amount invested by Ishita in the business.

- A. Rs. 12000      B. Rs. 15000      C. Rs, 18000      D. Rs. 10000  
E. None of these

2. Kishan borrowed a certain sum from the bank. The bank charges a simple interest of 10 % per annum. Kishan later realized that he no longer needs the entire money. So he lent 60 percent of the borrowed sum to Vikas at the rate of 20% per annum compounded annually. At the end of 3 years, Vikas paid him a sum of Rs. 1555200. How much amount(in Rs.) will Kishan pay to the bank if he repays the entire loan at the end of 4 years?

- A. 2400000      B. 2700000      C. 2100000      D. 2500000  
E. 2000000

3. Vijay spends 75% of his salary and saves the remaining. After his salary is increased by 25%, he saves 80% of the increased amount besides the amount he used to save earlier. What will be the percentage change in his monthly savings?

- A. 90%                      B. 80%                      C. 40%                      D. 70%
- E. 60%

4. The monthly budget of A and B are in the ratio of 17 : 19. If they get an extra budget of Rs. 3500 each, the ratio of new monthly budget of A and B becomes 12 : 13. What is the new monthly budget of A?

- A. Rs. 15000                      B. Rs. 13000                      C. Rs. 10000                      D. Rs. 12000
- E. Rs. 14000

5. Kundan purchased 450 oranges of 3 types such that he earned a profit 9%, 10% and 12% respectively on each type. He earned a profit of  $\frac{66}{7}$  % on first two types and 10% overall profit on all the types. Find the number of oranges in all the three types.

- A. 100,200 and 150                      B. 120 ,90 and 240
- C. 100, 75 and 275                      D. 150,200 and 100
- E. 200,150 and 100

6. A mathematician is called for a birthday party of a child to show some tricks. The mathematician has three things to assist him in his tricks, which are a coin, a dice and a deck of cards. He does his tricks with the combination of the three or either two of the three. He uses coin and cards to determine the age of a guest, dice and cards to count the number of guests in the party.

He uses all the three things to play a number game. He pulls off all the tricks by assigning specific consecutive values to each outcome of the dice roll, coin toss and card draw.

If a kid takes half of the mathematician's cards, replaces mathematician's coin with a biased coin showing only one outcome only when tossed, then what is the percentage reduction in the number of total outcomes available to the mathematician?

- A. 58%                      B. 80%                      C. 60%                      D. 75%
- E. None of these

7. Three friends Ajay, Chandan and Ramesh can complete a particular work in 24 days. All three friends started the work but Chandan left the work after 10 days. After another 10 days, Ajay also left the work. Ramesh completed the remaining work in another 12 days. If Ramesh alone can complete the work in 48 days then how much time will Chandan take to complete the work if he is working alone?

- A. 90 days                      B. 80 days                      C. 120 days                      D. 60 days
- E. 75 days

8. A motorboat goes 48 km of upstream and comes back to its starting point in 15 hrs. if the speed of the boat in still water is 66.66% more than that of the speed of the stream. If boat had travelled only in upstream for 15 hours then find how much distance it would have travelled?

- A. 240 km                      B. 225 km                      C. 180 km                      D. 165 km
- E. None of these

9. Three boys A, B and C decide to run around a circular track. They start at the same time and run in the same direction. A runs the fastest and when A finishes a lap, it is seen that C is thrice as much behind B as B is behind A. When A completes 2 laps, C is the exact same position on the circular track as B was when A finished 1 lap. Find the ratio of the speeds of A, B and C?

A. 5 : 3 : 1

B. 4 : 2 : 1

C. 7 : 5 : 2

D. 7 : 6 : 1

E. 7 : 6 : 3

10. The respective ratio of water and wine is 2 : 5. If we add another mixture of water and sprite in which the respective ratio of sprite and water is 4 : 7 then the quantity of water becomes 31 litres in the new mixture. If in the first mixture, the quantity of wine is 25 litres the what is the concentration of sprite in the new mixture?

A. 19.25%

B. 17.65%

C. 28.45%

D. 12.25%

E. 18.65%

### Correct answers:

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

### Explanations:

1.

Let amount invested by Ishita is 'C'.

Ratio of their shares =  $(12000 \times 5) : (15000 \times 6) : (C \times 8) = 7500 : 11250 : C$

$$\text{Share of Rakesh} = 28382 \times \frac{11250}{7500 + 11250 + C} = 11106$$

$$\Rightarrow 28382 \times 11250 = 11106 \times (7500 + 11250 + C)$$

$$\Rightarrow 319297500 = 208237500 + 11106C$$

$$\Rightarrow C = 10000$$

Hence amount invested by Ishita = Rs.10000

Therefore, option (D) is correct.

2.

Let the amount borrowed by Kishan be Rs. 100x.

We know that he gave 60 % of this money to Vikas. Hence, amount given to Vikas must be Rs. 60x.

Thus, the amount that Vikas will have to pay to Kishan must be Rs.  $60x \times 1.2 \times 1.2 \times 1.2$

We have been given that

$$60x \times 1.2 \times 1.2 \times 1.2 = 1555200$$

$$\Rightarrow x = 15000$$

Hence,

Kishan must have borrowed  $15000 \times 100 = \text{Rs. } 1500000$  from the bank

Thus, interest paid by him will be  $1500000 \times 0.1 \times 4 = 600000$

Thus, he must have paid back Rupees  $1500000 + 600000 = \text{Rs. } 2100000$  to the bank.

Hence, option C is correct.

**3.**

$\Rightarrow$  Let his salary be Rs. 100

$\Rightarrow$  His expenditure = 75% of 100 = Rs. 75

$\Rightarrow$  His saving = Rs.  $(100 - 75) = \text{Rs. } 25$

$\Rightarrow$  Salary increased by 25%

$\Rightarrow$  New salary = Rs.  $\frac{100 \times 125}{100} = \text{Rs. } 125$

$\Rightarrow$  saving on increased amount = Rs. 80% of 25 = Rs. 20

$\Rightarrow$  New Saving = Rs.  $(25 + 20) = \text{Rs. } 45$

$\Rightarrow$  required increase in saving =  $\frac{45 - 25}{25} \times 100$

$\therefore$  required increase in saving = 80%

Hence, option B is correct.

**4.**

⇒ Let the monthly budget of A and B be  $17x$  and  $19x$  respectively

⇒ After extra budget the new ratio of A and B will be  $(17x + 3500)$  and  $(19x + 3500)$  respectively

⇒ According to question

$$\Rightarrow \frac{17x + 3500}{19x + 3500} = \frac{12}{13}$$

$$\Rightarrow 13 \times (17x + 3500) = 12 \times (19x + 3500)$$

$$\Rightarrow 221x + 45500 = 228x + 42000$$

$$\Rightarrow 7x = 3500$$

$$\Rightarrow x = 500$$

$$\therefore \text{New budget of A} = \text{Rs. } (17 \times 500 + 3500) = \text{Rs. } 12000$$

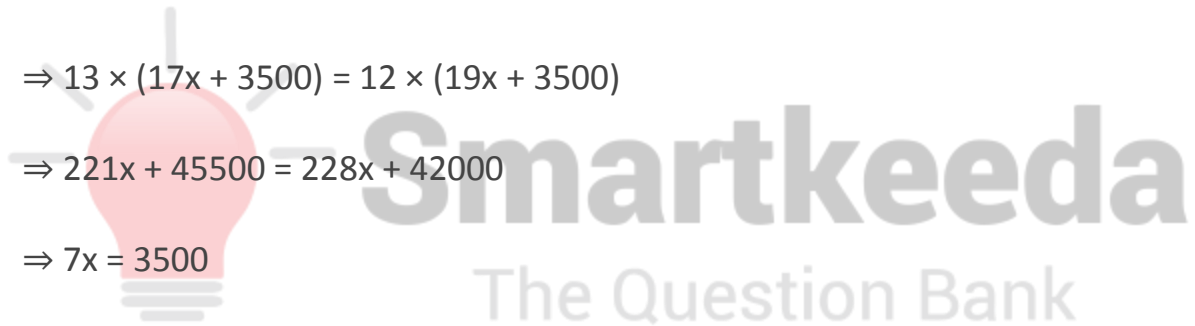
Hence, option D is correct.

**5.**

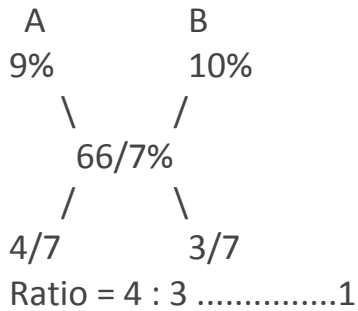
Let the three type of oranges are A, B and C.

Now, according to question

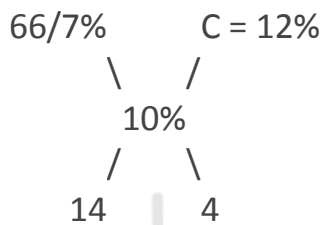
By using mixture allegation







Again, using mixture allegation



Ratio = 7 : 2 .....2

Since, we get the the ratio of mixture of (A & B ) with C = 7 : 2

But A : B = 4 : 3

therefore, A : B : C = 4 : 3 : 2

$$\text{A type orange} = 450 \times \frac{4}{9} = 200$$

$$\text{B type orange} = 450 \times \frac{3}{9} = 150$$

$$\text{C type orange} = 450 \times \frac{2}{9} = 100$$

Hence, option E is correct.



**6.**

Number of possible outcomes of a dice roll = 6

Number of possible outcomes of a card draw = 52

Number of possible outcomes of a coin toss = 2

Total number of possible outcomes =  $6 \times 52 \times 2 = 624$

Number of possible outcomes of a dice roll = 6

Number of possible outcomes of a card draw = 26

Number of possible outcomes of a coin toss = 1

Total number of possible outcomes =  $6 \times 26 \times 1 = 156$

Reduction in outcomes =  $624 - 156 = 468$

Percentage reduction =  $\frac{468}{624} \times 100 = 75\%$

Hence, option D is correct.

**7.**

The three people working together can finish the work in 24 days. Let the total amount of work to be done be 240 units. (240 has been taken for ease of calculations. Any value which is a multiple of LCM (24, 48) can be taken).

Hence, the work done by three people in 1 day = 10 units

The three people work together for 10 days. Hence, they would have completed 100 units of work.

Ramesh can complete the work in 48 days. Thus, the amount of work done

by him in 1 day

$$= \frac{240}{48} = 5 \text{ units}$$

Since Ramesh worked alone for last 12 days so he must have completed  $12 \times 5 = 60$  units in those 12 days. Thus, 10 days that Ajay and Ramesh worked together, the work done by them would be  $240 - 100 - 60 = 80$

Ramesh would have completed  $10 \times 5 = 50$  units of work in these 10 days. Hence, Ajay must have completed 30 units of work in 10 days. Thus, Ajay does 3 units of work in 1 day. Hence, Chandan must be doing  $10 - 5 - 3 = 2$  units of work in 1 day.

Thus, time taken by him to complete the work alone

$$= \frac{240}{2} = 120 \text{ days}$$

Hence, option C is correct.

**8.**

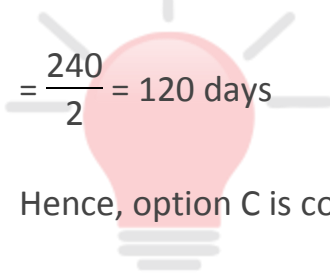
the speed of the boat in still water is 66.66% more than that of the speed of stream

Let the speed of stream =  $x$  km/hr

Then speed of the boat will become = 166.66% of  $x$

$$= \frac{5x}{3} \text{ km/hr}$$

$$\text{Speed in upstream} = \frac{5x}{3} - x = \frac{2x}{3} \text{ km/hr .....(i)}$$



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Speed in downstream =  $\frac{5x}{3} + x = \frac{8x}{3}$  km/hr .....(ii)

According to question,

$$\frac{48}{2x} + \frac{48}{\frac{8x}{3}} = 15 \text{hrs}$$

By solving this,

$$x = 6$$

From the equation (i)

$$\text{Speed of upstream} = 2 \times \frac{6}{3} = 4 \text{ km/hr}$$

The total distance travelled by him in upstream in 15 hrs =  $15 \times 4 = 60$  km

Hence, option E is correct.

**9.**

start point.....C(d-4x).....B(d-x).....A(d) → 1 lap

Let the distance between A and B is x.

then distance between A and C =  $x + 3x = 4x$

In second lap:-

start point.....C(d-x).....A(d) → 2 lap

Let the speed of A, B and C is a, b, c respectively and t is the time for A to cover 1 lap.

$$d = at$$

$$d - x = bt$$

$$d - 4x = ct$$

For 2nd lap, time taken by a is  $2t$ .

$$2d = a(2t)$$

$$2d - 2x = b(2t)$$

$$2d - 8x = c(2t)$$

therefore, if A, B, C were running on straight path of length  $2d$ , A would beat C by  $8x$  distance whereas in circular it is  $x$  distance.

It means  $7x = d$

$$\text{or, } d - x = 6x$$

$$\text{or, } d - 4x = 3x$$

Therefore in time  $t$ ,

For same time, the ratio of distance = ratio of speed

$$= d : d - x : d - 4x$$

$$= 7x : 6x : 3x$$

$$= 7 : 6 : 3$$

Hence, option E is correct.



**10.**

In the first mixture, let water =  $2x$  litres and wine =  $5x$  litres

In the second mixture, let sprite =  $4y$  litres and water =  $7y$  litres

If we add both mixture then according to the question, water becomes 31 litres i.e.  $2x + 7y = 31$  ----- (i)

From the question, in the first mixture, quantity of wine =  $5x = 25$  litres  
therefore  $x = 5$  litres

Put the value of  $x$  in the equation (i)

$$10 + 7y = 31$$

$$y = 3$$

If we mix the first and the second mixture then the total quantity of new mixture =  $2x + 5x + 4y + 7y = 7x + 11y = 35 + 33 = 68$ .

litres and the quantity of sprite in the new mixture =  $4y = 4 \times 3 = 12$  litres

Therefore, the required concentration

$$= \frac{12 \times 100}{68} = \text{approximately } 17.65\%$$

Hence, option B is correct.



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