

Quiz Date: 4th May 2020

Q1. Birdi's brother is 3 years elder to him. His father was 28 years of age when his sister was born. His mother was 26 years of age when he was born. His sister was 4 years of age when his brother was born, the ages of Birdi's father and mother respectively when his brother was born.

- (a) 32 years and 23 years
- (b) 35 years and 29 years
- (c) 35 years and 28 years
- (d) 35 years and 33 years
- (e) 28 years and 26 years

Q2. If the ages of A and C are added to twice the age of B, the total becomes 59. If the ages of B and C are added to thrice the age of A, the total becomes 68. And if the age of A is added to thrice the age of B and thrice the age of C, the total becomes 108. What is the age of A ?

- (a) 17 years
- (b) 19 years
- (c) 12 years
- (d) 11 years
- (e) 21 years

Q3. A person was asked to state his age in years. His reply was, "Take my age three years hence, multiply it by 3 and then subtract three times my age three years ago and you will know how old I am." What was the age of the person ?

- (a) 18 years
- (b) 20 years
- (c) 24 years
- (d) 32 years
- (e) 36 years

Q4. Two mixtures equal in quantity contain wine, water and alcohol in the ratio of 6 : 5 : 3 and 3 : 5 : 6 respectively. From the first mixture, 20% of wine, 25% of water and 40% of alcohol is taken out and from the second mixtures same percentage of three constituents is taken out. Now the remaining mixtures are added together. Find the respective ratio of wine, water and alcohol in the new mixture?

- (a) 36 : 18 : 24
- (b) 25 : 18 : 36
- (c) 18 : 24 : 25
- (d) 24 : 25 : 18
- (e) None of these

Q5. M, P and Q together started a business. M invested Rs. 6,500 for 6 months, P invested Rs. 8,400 for 5 months and Q invested Rs. 10,000 for 3 months. M is working member for which he gets 5% of total profit extra. If the total gain is Rs. 7,400, then Q's profit share is:

- (a) Rs. 1,900
- (b) Rs. 2,100

- (c) Rs. 3,200
- (d) Rs. 1800
- (e) Rs. 2700

Q6. A solution of sugar syrup has 15% sugar. Another solution has 5% sugar. How many litres of the second solution must be added to 20 litres of the first solution to make a solution of 10% sugar?

- (a) 10
- (b) 5
- (c) 15
- (d) 20
- (e) 40

Q7. A, B and C started a business by investing Rs 20,000, Rs 28,000 and Rs 36,000 respectively. After 6 months, A and B withdrew an amount of Rs 8,000 each and C invested an additional amount of Rs 8,000. All of them invested for equal period of time. If at the end of the year, C got Rs 12,550 as his share of profit, what was the total profit earned?

- (a) Rs 25,100
- (b) Rs 26,600
- (c) Rs 24,300
- (d) Rs 22,960
- (e) Rs 21,440



Q8. P, Q and R enter into a partnership and invested some amount. After one year, P double its investment, Q increase its investment by $33\frac{1}{3}\%$ and R increase its investment by 20%. In the third year P and Q withdraw their investments and S joins the partnership with R. After three year they got profit in the ratio of 12 : 14 : 17 : 8 (P : Q : R : S). If difference between initial investment of Q and R is 1150. Then find out the total initial investment made by P and S together?

- (a) 12100
- (b) 14400
- (c) 13800
- (d) 15000
- (e) None of these

Q9. Three partners X, Y and Z enter into a partnership with their initial investment sum in the ratio of 3 : 5 : 8. After 4 months, X added $33\frac{1}{3}\%$ of his initial sum while Z withdraw 25% of his initial sum. After a year, they decided to distribute 80% of profit in the ratio of their investment and rest to donate a charitable trust. If amount donated to charitable trust is Rs 7360, then find net profit of Y.

- (a) Rs 10,400
- (b) Rs 9,600
- (c) Rs 8,400
- (d) Rs 8,700
- (e) Rs 12,800

Q10. A container contains a mixture of two liquids A and B in the ratio of 7 : 5. When 9 litres of mixture is replaced with liquid B. The ratio of A and B becomes 7 : 9. How many litres of liquids A was contained by the container initially ?

- (a) 10 liters
- (b) 20 liters
- (c) 21 liters
- (d) 25 liters
- (e) 27 liters

Q11. Eleven years earlier the average age of a family of 4 members was 28 years. Now the average age of the same family with six members is yet the same, even when 2 children were born in this period. If children belong to the same parents and the age of the first child at the time of the birth of the younger child was same as there were total family members just after the birth of the youngest members of this family, then the present age of the youngest member of the family is

- (a) 3 years
- (b) 5 years
- (c) 6 years
- (d) 2 years
- (e) 4 years

Q12. An oil refinery takes 100 l of crude oil as input and after refining for 1 h gives certain amount of output oil Xl. This can be sold in the market at a profit of Rs. 30 per l. If this oil is further refined for $\frac{1}{2}$ h, it gives oil Yl. This can be sold at a profit of Rs. 50 per L. Output and input ratio at both the stages is 90%. The maximum amount that can be earned from 1000 L of crude input out of both the cases is

- (a) Rs. 40000
- (b) Rs. 30000
- (c) Rs. 27000
- (d) Rs. 40500
- (e) Rs. 35500

Q13. Ram prepares solutions of alcohol in water according to customers' needs. This morning Ram has prepared 27 litres of a 12% alcohol solution and kept it ready in a 27 litre

delivery container to be shipped to the customer. Just before delivery, he finds out that the customer had asked for 27 litres of 21% alcohol solution. To prepare what the customer wants, Ram replaces a portion of 12% solution by 39% solution. How many litres of 12% solution are replaced ?

- (a) 5
- (b) 9
- (c) 10
- (d) 12
- (e) 6

Q14. A jar full of whisky contains 40% alcohol. A part of this whisky is replaced by another containing 19% alcohol and now the percentage of alcohol was found to be 26%. The part of whisky replaced is:

- (a) $1/3$
- (b) $2/3$
- (c) $2/5$
- (d) $3/5$
- (e) $4/5$



Q15. Three containers A, B and C are having mixtures of milk and water in the ratio 1 : 5, 3 : 5 and 5 : 7, respectively. If the capacities of the containers are in the ratio 5 : 4 : 5, find the ratio of milk to water, if the mixtures of all the three containers are mixed together ?

- (a) 53 : 115
- (b) 23 : 123
- (c) 11 : 4
- (d) 17 : 23
- (e) None of these

Solutions

S1. Ans.(a)

Sol.

Let age of Birdi = $x - 3$ and age of Birdi's brother = x

Age of Birdi's sister = $x + 4$

Age of father when Birdi's brother was born = $28 + x - x + 4 = 32$ years

Age of mother when Birdi's brother was born = $26 - 3 = 23$ years

S2. Ans.(c)

Sol.

$$A + 2B + C = 59 \dots(i)$$

$$3A + B + C = 68 \dots(ii)$$

$$A + 3B + 3C = 108 \dots(iii)$$

Solving these equations together

$$A = 12 \text{ years, } B = 15 \text{ years, } C = 17 \text{ years}$$

S3. Ans.(a)

Sol.

Let age of person = x years

$$\therefore x = 3(x + 3) - 3(x - 3)$$

$$\Rightarrow x = 9 + 9 = 18 \text{ years}$$

S4. Ans.(d)

Sol.

New ratio in 1st mixture

$$= 6 \times \frac{4}{5} : 5 \times \frac{3}{4} : 3 \times \frac{3}{5}$$

$$= 32 : 25 : 12$$

New ratio in 2nd mixture

$$= 3 \times \frac{4}{5} : 5 \times \frac{3}{4} : 6 \times \frac{3}{5}$$

$$= 16 : 25 : 24$$

Now ratio of combined mixture

$$= 48 : 50 : 36$$

$$\text{Required ratio} = 24 : 25 : 18$$

S5. Ans.(a)

Sol.

	M	P	Q
Capital →	6500	8400	10000
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Time →	6	5	3

	390	420	300
	13	14	10

$$\text{M's extra share on working partner} = 7400 \times \frac{5}{100} = \text{Rs. } 370$$

$$\text{Remaining profit} = \text{Rs. } 7400 - 370 = \text{Rs. } 7030$$

$$37 \text{ units} = 7030$$

$$1 \text{ unit} = \frac{7030}{37}$$

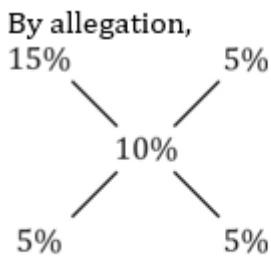
$$\text{Profit share of Q} = \frac{7030}{37} \times 10 = \text{Rs. } 1900$$

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S6. Ans.(d)

Sol.

 $\Rightarrow 1: 1$

So, required answer = 20 litres

S7. Ans.(a)

Sol.

(A's profit): (B's profit): (C's profit)

 $= (20,000 \times 6 + 12,000 \times 6): (28,000 \times 6 + 20,000 \times 6): (36,000 \times 6 + 44,000 \times 6)$ $= 32,000: 48,000: 80,000$ $= 2: 3: 5$ $\therefore \text{C's profit} = \frac{5}{10} \times \text{Total profit}$ $\Rightarrow \text{Total profit} = 2 \times 12,550$ $= \text{Rs. } 25,100$

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S8. Ans.(c)

Sol. Let investment of P, Q, R and S is p, q, r and s respectively.

P	Q	R	S
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Now in first year $\rightarrow p \times 12 : q \times 12 : r \times 12$ In 2nd year $\rightarrow 2p \times 12 : \frac{4q}{3} \times 12 : \frac{6r}{5} \times 12$ In 3rd year $\frac{6r}{5} \times 12 : s \times 12$

P: Q: R: S

 $\Rightarrow (p \times 12 + 2p \times 12): (q \times 12 + \frac{4}{3}q \times 12): r \times 12 + 2 \times \frac{6}{5}r \times 12: s \times 12$ $3p: \frac{7q}{3}: \frac{17}{5}r: s = 12: 14: 17: 8$ $\Rightarrow p: q: r: s = 4: 6: 5: 8$

Difference between Q and R initial investment = 1150

Total Investment of P and S together

 $= \frac{1150}{1} \times 12 = 13800$

S9. Ans.(b)

$$\text{Sol. Total profit} = \frac{100}{20} \times 7,360$$

$$= \text{Rs } 36,800$$

Ratio of their investments

$$= (3x \times 4 + 4x \times 8) : (5x \times 12) : (8x \times 4 + 6x \times 8)$$

$$= 44 : 60 : 80$$

$$= 11 : 15 : 20$$

$$\therefore \text{Profit of Y} = \frac{15}{46} \times \frac{80}{100} \times 36,800$$

$$= \text{Rs } 9,600$$

S10. Ans.(c)

Sol. Suppose, the container initially contains $7x$ and $5x$ litres of mixture A and B, respectively.

Quantity of A in mixture left

$$\left(7x - \frac{7}{12} \times 9\right) = \left(7x - \frac{21}{4}\right) \text{ L}$$

Quantity of B in mixture left

$$\left(5x - \frac{5}{12} \times 9\right) = \left(5x - \frac{15}{4}\right) \text{ L}$$

$$\therefore \frac{7x - \frac{21}{4}}{\left(5x - \frac{15}{4}\right) + 9} = \frac{7}{9}$$

$$\Rightarrow \frac{28x - 21}{20x + 21} = \frac{7}{9}$$

$$\Rightarrow 252x - 189 = 140x + 147$$

$$\Rightarrow 112x = 336 \Rightarrow x = 3$$

\Rightarrow Container contained $7 \times 3 = 21$ L of A

S11. Ans.(a)

Sol.

	No. of family members	Average	Total
Eleven years earlier	4	28	112
Presently	If 4	39	156
	6	28	168

Since it is obvious that just after the birth of the youngest member (i.e., child) was 6 family members in the family. Therefore, at the time of the birth of the youngest child the elder child's age was 6 years.

Now the sum of their ages

$$= x + (x + 6) = 12 = (168 - 156)$$

$$\Rightarrow x = 3$$

So, age of youngest member of family = 3 years

S12. Ans.(d)

Sol.

First case,

(Refining for one hr)

Input = 1000 ℓ

$$\text{Output} = 1000 \times \frac{90}{100} = 900\ell \Rightarrow x = 900 \ell$$

$$\text{Profit} = 900 \times 30 = 27000$$

Second case

(Refining for further $\frac{1}{2}$ hr).

Input = 900 ℓ

$$\text{Output } y = 900 \times \frac{90}{100} = 810 \ell$$

$$\text{Profit} = 810 \times 50 = \text{Rs. } 40500$$

so maximum profit is obtained in second case



S13. Ans.(b)

Sol.

Let Ram replaces x litres of 12% sol. with 39% solution.

$$\text{Now, quantity of 12\% sol. In 27 litre} = \frac{27 \times 12}{100}$$

∴ After replacing we have volume of 21% sol.

$$= \left(\frac{27 \times 12}{100} - \frac{12x}{100} + \frac{39x}{100} \right) = \frac{324 + 27x}{100}$$

This will be equal to 27 litre of 21% sol.

$$\therefore \frac{324 + 27x}{100} = \frac{21 \times 27}{100}$$

$$\therefore x = \frac{567 - 324}{27} = \frac{243}{27} = 9$$

S14. Ans.(b)

Sol.



1 : 2

Part of whisky replaced is $\frac{2}{3}$

S15. Ans.(a)

Sol.

Required ratio of milk to water

$$\begin{aligned}
 &= \frac{\frac{1}{6} \times 5 + \frac{3}{8} \times 4 + \frac{5}{12} \times 5}{\frac{5}{6} \times 5 + \frac{5}{8} \times 4 + \frac{7}{12} \times 5} \\
 &= \frac{\frac{5}{6} + \frac{3}{2} + \frac{25}{12}}{\frac{25}{6} + \frac{5}{2} + \frac{35}{12}} \\
 &= \frac{53}{115}
 \end{aligned}$$

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