Quiz Date: 14th August 2020

Q1. A chemist has 10 litre of a solution that is 10% nitric acid by volume. He wants to dilute the solution to 4% strength by adding water how many litre of water must be added ?
(a) 15
(b) 20
(c) 18
(d) 25
(e) 17

Q2. An alloy contains copper and zinc in the ratio 5 : 3 and another alloy contains copper and tin in the ratio 8 : 5. If equal weights of both the alloys are mixed together, then the weight of tin in the resulting alloy per kg will be
(a) 26/5
(b)5/26
(c) 7/31
(d) 31/7
(e) None of these

Q3. Alok bought 25 kg of rice at the rate of Rs. 6 per kg and 35 kg of rice at the rate of Rs. 7 per kg. He mixed both type of rice and sold the mixture at the rate of Rs. 6.75 per kg. What was his gain or loss in the transaction ?
(a) Rs. 16 gain
(b) Rs. 16 Loss
(c) Rs. 20 gain
(d) Rs. 10 gain
(e) Rs. 10 loss

Q4. An alloy contains zinc and copper in the ratio 5 : 8 and another alloy contains zinc and copper in the ratio 5 : 3. If equal amount of both the alloys are melted together, then the ratio of zinc and copper in the resulting alloy is
(a) 25 : 24
(b) 3 : 8
(c) 103 : 105
(d) 105 : 103
(e) 8 : 3

Q5. A mixture of a certain quantity of milk with 16 litres of water is worth Rs 3 per litre. If pure milk be worth Rs 7 per litre how much milk is there in the mixture ?
(a) 10 litres
(b) 12 litres
(c) 14 litres
(d) 16 litres
(e) 18 litres

Q6. A man bought a piece of land for Rs. 72000. He sold 1/3 of the part at 20% loss and 2/3 of the remaining at 25% profit. At what rate should he sell the remaining portion to earn a 20% profit on the whole land ?
(a) Rs. 27200
(b) Rs. 29200
(c) Rs. 30000
(d) Rs. 27500
(e) Rs. 22700

Q7. A man bought 80 eggs at the rate of 24 rupees per dozen 10 eggs got broken and the remaining eggs he sold at 3.20 rupees per egg. If he had spent 16 rupees on other expenses, find his profit or loss percentage.
(a) $22\frac{2}{9}\%$
(b) $27\frac{3}{11}\%$
(c) $27\frac{2}{9}\%$
(d) $22\frac{3}{11}\%$
(e) $23\frac{7}{11}\%$

Q8. A shopkeeper buys 288 items at 90 paise each. But later he realized that $13\frac{8}{9}\%$ of the total items are defected and could not be sold. He sells the remaining at Rs. 1.2 each. What is his overall gain percentage?
(a) $14\frac{22}{27}\%$
(b) $14\frac{20}{27}\%$
(c) 15%
(d) $15\frac{4}{9}\%$
(e) 17%

Q9. A person bought two clocks. The cost price of one of them exceeds the cost price of the other by 1/4th. He sold the dearer one at a gain of 10% and the other at a gain of 7.5% and thus got Rs. 98 in all as profit. Find the cost price of the cheaper one.
(a) Rs.440
(b) Rs. 490
(c) Rs. 430
(d) Rs. 460
(e) Rs. 500

Q10. A vessel contains 1 litre mixture of milk and water and the other vessel contains 2 litre mixture of the same. The ratio of milk and water in first and second vessels is 5 : 4 and 7 : 2 respectively. The mixture of second vessel is poured back to first vessel. Find the ratio of milk and water in the first vessel.
(a) 8 : 11
(b) 9 : 8
(c) 19 : 8
(d) 11 : 19
(e) 11 : 8

Q11. A pet shop owner sells two puppies at the same price. On one he makes a profit of 20% and on the other he suffers a loss of 20%. Find his loss or gain per cent on the whole transaction.
(a) Gain of 4%
(b) No profit no loss
(c) Loss of 10%
(d) Loss of 4%
(e) Profit of 6 %

Q12. The ratio of the quantities of an acid and water in a mixture is 1 : 3. If 5 litres of Acid is further added to the mixture, the new ratio becomes 1 : 2. The quantity of new mixture in litres is
(a) 32
(b) 40
(c) 42
(d) 45
(e) 50

Q13. The ratio of water and wine in two different containers is 2 : 3 and 4 : 5 respectively. In what ratio we are required to mix the mixture of two containers in order to get the new mixture in which the ratio of wine and water be 7 : 5 ?
(a) 7 : 3
(b) 5 : 3
(c) 8 : 5
(d) 2 : 7
(e) 3 : 5

Q14. In what ratio milk & water should be mixed so that after selling this mixture at its cost price there is a profit of $11\frac{1}{9}\%$?
(a) 8 : 3
(b) 8 : 1
(c) 9 : 1
(d) 4 : 9
(e) 3 : 8

Q15. In a 40 litre mixture of alcohol & water, the ratio of alcohol and water is 5 : 3. If 20% of this mixture is taken out and the same amount of water is added then what will be the ratio of alcohol and water in final mixture?
(a) 5 : 2
(b) 3 : 1
(c) 4 : 1
(d) 3 : 2
(e) 1 : 1

Solutions

S1. Ans.(a)
Sol.

Initial quantity of acid $= 10 \times \dfrac{10}{100}$
$= 1\,\ell$

And that of water $= 9\,\ell$

Let x litre water is added.

$\therefore \dfrac{4}{100} \times (10 + x) = 1$

$\Rightarrow x = 15\,\ell$

S2. Ans.(b)
Sol.

Let quantity of alloy of copper and zinc = 8 kg
And that of copper and tin = 13 kg
Let 1 kg of each was mixed
$\therefore$ weight of tin in this mixture of 2 kg

$= 1 \times \dfrac{5}{13}$

$= \dfrac{5}{13}$ kg

$\therefore$ Weight of tin per kg $= \dfrac{5}{26}$ kg

S3. Ans.(d)
Sol.
Loss or gain in the transaction
$= 6.75 \times 60 - (25 \times 6 + 35 \times 7)$
$= $ Rs. 10 gain

S4. Ans.(d)
Sol.

Let 1 kg of each is taken and melted

∴ Required ratio $= \dfrac{\dfrac{5}{13} + \dfrac{5}{8}}{\dfrac{8}{13} + \dfrac{3}{8}}$

$= \dfrac{105}{103}$

S5. Ans.(b)
Sol.

Let the total quantity of mixture be x ℓ.

∴ $3x = 7(x - 16)$ or $x = 28ℓ$

∴ quantity of milk = 12ℓ

S6. Ans.(a)
Sol.
Let he sells the remaining part for Rs x

∴ $\dfrac{1}{3} \times \dfrac{80}{100} \times 72000 + \dfrac{2}{3} \times \dfrac{2}{3} \times \dfrac{125}{100} \times 72000 + x$

$= \dfrac{120}{100} \times 72000$

⇒ x = 86400 – 59200

⇒ x = Rs 27,200

S7. Ans.(b)
Sol.
Total CP of eggs = 80 × 2 + 16
= 176 rupees
Total S.P. of remaining eggs = 70 × 3.20
= 224 rupees
∴ Profit/loss percentage $= \dfrac{224-176}{176} \times 100$

$= \dfrac{4800}{176}$

$= 27\dfrac{3}{11}\%$

S8. Ans.(a)
Sol.

Total CP = 0.9 × 288 = Rs. 259.2

Total SP = 248×1.2 = $Rs. 297.6$

Gain percentage

$= \frac{(297.6 - 259.2)}{259.2} \times 100 = 14\frac{22}{27}\%$

S9. Ans.(b)
Sol.

Let CP's be X & 5X/4.

Now, 5X/4 × 0.1 + X × 0.075 = 98

$\Rightarrow 25x + 15x = 9800 \times 2$

$\Rightarrow x = \frac{98 \times 200}{40} \Rightarrow x = 490$

S10. Ans.(c)
Sol.

Initially quantity of milk in first mixture $= \frac{5}{9}\ell$

& quantity of water in first vessel $= \frac{4}{9}\ell$

Quantity of milk in second mixture $= \frac{14}{9}\ell$

And that of water $= \frac{4}{9}\ell$

Now, new ratio of milk and water

$= \frac{\frac{5}{9} + \frac{14}{9}}{\frac{4}{9} + \frac{4}{9}}$

$= \frac{19}{8}$

S11. Ans.(d)
Sol.

First method:

Let selling price of each puppy is Rs. x

$\therefore$ cost price of first puppy

$= x \times \dfrac{100}{120} = \dfrac{5x}{6}$

and cost price of other puppy

$= x \times \dfrac{100}{80} = \dfrac{5x}{4}$

Total cost price $= \dfrac{5x}{6} + \dfrac{5x}{4} = \dfrac{25x}{12}$

$\therefore$ percentage profit or loss

$= \dfrac{2x - \dfrac{25x}{12}}{\dfrac{25x}{12}} \times 100$

$= -4\%$

or

4% loss

2nd method:

In such type of questions, always loss occurs irrespective of selling price

$\therefore$ % loss on overall transaction

$= \dfrac{(\text{common loss or profit})^2}{100}\%$

$= \dfrac{20^2}{100}$

= loss of 4%

S12. Ans.(d)

Sol.

Let initial quantity of mixture of acid
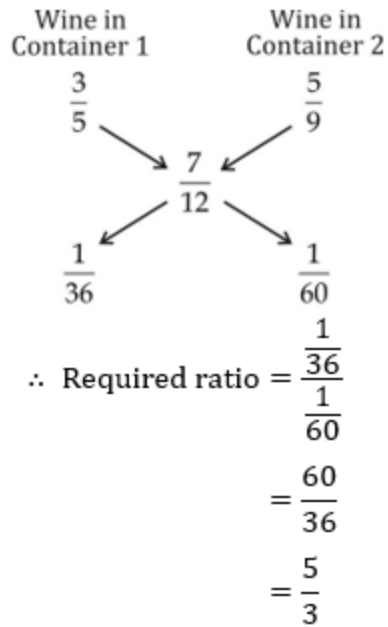and water is 4x ℓ.

$\therefore$ A/c,

$\dfrac{x+5}{3x} = \dfrac{1}{2}$

$\Rightarrow x = 10\ \ell$

$\therefore$ New quantity of mixture = 45 ℓ

S13. Ans.(b)

Sol.

Wine in Container 1   Wine in Container 2

$$\frac{3}{5} \searrow \quad \nearrow \frac{5}{9}$$

$$\frac{7}{12}$$

$$\frac{1}{36} \swarrow \quad \searrow \frac{1}{60}$$

$$\therefore \text{ Required ratio} = \frac{\frac{1}{36}}{\frac{1}{60}}$$

$$= \frac{60}{36}$$
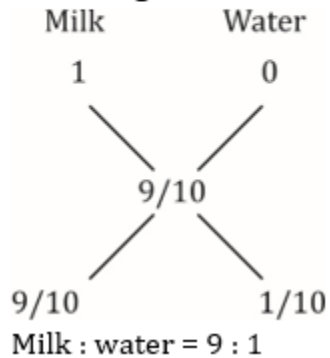
$$= \frac{5}{3}$$

S14. Ans.(c)
Sol.
Let cost price of milk is 1 then
Cost price of mixture

$$= 1 \times \frac{100}{100 + \frac{100}{9}} = \frac{9}{10}$$

According to law of mixture

Milk   Water

1   0

$$\searrow \quad \swarrow$$

9/10

$$\swarrow \quad \searrow$$

9/10   1/10

Milk : water = 9 : 1

S15. Ans.(e)
Sol.

Quantity of alcohol in original mixture

$$= 40 \times \frac{5}{8} = 25 \text{ litre}$$

Quantity of water = 40 – 25 = 15 litre

According to question

Required Ratio

$$= \frac{25 - \left(40 \times \frac{20}{100} \times \frac{5}{8}\right)}{15 - \left(40 \times \frac{20}{100} \times \frac{3}{8}\right) + 40 \times \frac{20}{100}}$$

$$= \frac{20}{15 - 3 + 8} = 1 : 1$$

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