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Mixture and Alligation Questions for Bank Clerk Pre Exams – Mixture and Alligation Quiz at Smartkeeda.

Mixture and Alligation Quiz 1

Directions: Kindly study the following Questions carefully and choose the right answer:

1. A shopkeeper deals in milk and 45 litre mixture is to be distributed in Milk & Water in the ratio of 4 : 1. If 4 litre milk & 3 litre water will be added in the mixture then what will be the new ratio of water and milk?

A. 5 : 6
B. 3 : 10
C. 4 : 5
D. 7 : 8
E. 10 : 3

2. 48 litre of Glycerin is mixed with 144 litre Rose water. D litre of total mixture is taken out and 32 litre Glycerin and 48 litre Rose water are added in the mixture. The final mixture contains 30% Glycerin, find the quantity of the mixture that is taken out.

A. 24 litre
B. 32 litre
C. 40 litre
D. 20 litre
E. None of these

3. In a mixture, the ratio of the alchohol and water is 6 : 5. When 22 litre mixture are replaced by water, the ratio becomes 9 : 13. Find the quantity of water after replacement.

A. 62 litre
B. 50 litre
C. 40 litre
D. 52 litre
E. None of these

4. A solution of 'THANDA SHARBAT' has 15% sugar. Another solution has 5% sugar. How many liters' of the second solution must be added to the 20L of first solution to make a solution of 10 % sugar?

A. 10 L
B. 5 L
C. 15 L
D. 20 L
E. None of these

5. Copper and Zinc are in the ratio 2 : 3 in 200 gms of an alloy. The quantity (in grams) of copper to be added to it to make the ratio 3 : 2 is:

A. 150gm
B. 100gm
C. 120gm
D. 125gm
E. None of these

6. How many kilograms of rice of Rs.5.4 per kg should be mixed with 10 kg of rice of Rs.4.5 per kg, such that there may be gain of 20% by selling the mixture at Rs.5.94 per kg.

A. 10 kg
B. 12 kg
C. 15 kg
D. 8 kg
E. None of these

7. In the Mumbai Zoo, there are some ducks and some rabbits. If the head are counted there are 160, while the legs are 450. What will be numbers of Rabbit in the zoo?

A. 65   B. 60   C. 95
D. 85   E. 100

8. The ratio of milk to water in three containers of equal capacity is 3 : 2, 7 : 3 and 11 : 4 respectively. The three containers are mixed together. What is the ratio of milk to water after mixing?

A. 21 : 9   B. 41 : 18   C. 61 : 29
D. 38 : 8   E. None of these

9. The amount of water (in ml) that should be added to reduce 7 ml lotion, containing 70% alcohol, to a lotion containing 35% alcohol, is

A. 35 ml   B. 4 ml   C. 7 ml
D. 10.5 ml   E. Can't be determined

10. How many litres of water should be added to a 35-litre mixture of milk and water containing milk and water in the ratio of 4 : 3 such that the resultant mixture has 60% water in it?

A. 12   B. 10   C. 21
D. 15   E. None of these
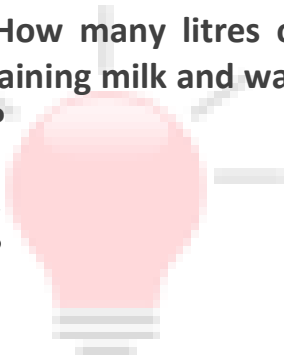
Correct Answers:

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

Explanations:

1. In the mixture of 45 litre,

Milk = $\dfrac{45}{5}$ × 4 = 36 litre, Water = $\dfrac{45}{5}$ × 1 = 9 litre

New ratio,

= 9 + 3 : 36 + 4

= 12 : 40 = 3 : 10

Hence, option B is correct.

2. Total mixture = 48 + 144 = 192 litre

% of Glycerin = $\dfrac{48}{192}$ × 100 = 25% = % of Rose water = 75%

In the final mixture glycerin= 30%, Rose water = 70%

Ratio = 30 : 70 = 3 : 7

(48 − D × 25% + 32) : (144 − D × 75% + 48) = 3 : 7

7 (48 − D × 25% + 32) = 3 (144 − D × 75% + 48)

7 (80 − 0.25 D) = 3 (192 − 0.75 D)

560 − 1.75 D = 576 − 2.25 D

2.25 D − 1.75 D = 576 − 560

0.5 D = 16

D = 32 litre

Hence, option B is correct.

3. Let alcohol = 6x, water = 5x

According to the question,

$6x - 22 \times \dfrac{6}{11} : 5x - 22 \times \dfrac{5}{11} + 22 = 9 : 13$

6x − 12 : 5x − 10 + 22 = 9 : 13

13 (6x − 12) = 9 (5x + 12)

78x − 156 = 45x + 108

78x − 45x = 156 + 108

33x = 264

x = 8

Water after replacement = 5 × 8 − 10 + 22 = 40 + 22 = 52 litre

Hence, option D is correct.

4. Let required amount of second solution to be added = a L

Then $\dfrac{15 \times 20 + 5a}{20 + a} = 10$

$\Rightarrow 300 + 5a = 200 + 10a$

$\Rightarrow 5a = 100$

$\Rightarrow a = 20$

Hence, option (D) is correct.

5. Given, quantity of the alloy = 200 gm.
If Copper : Zinc = 2 : 3

Then quantity of Copper = $\dfrac{2}{5} \times 200 = 80gm$

And quantity of Zinc = $\dfrac{3}{5} \times 200 = 120gm$

As per the question,

$\dfrac{80 + x}{120} = \dfrac{3}{2}$

$\Rightarrow x = 100$ gm
So The quantity of Copper to be added is 100gm

Hence, option B is correct.

6. Let the quantity of Rs.5.4 per kg rice = x kg
According to the question,
x × 5.4 + 4.5 × 10 = 5.94 × (10 + x) ÷ 120 × 100
5.4x + 45 = 4.95 × (10 + x)
5.4x + 45 = 49.5 + 4.95x
5.4x – 4.95x = 49.5 – 45
0.45x = 4.5
x = 10 kg
Hence, option A is correct.

7. Let, Ducks = x, Rabbit = y
As, Duck has 2 legs and rabbit has 4 legs,
Both have one head,
2x + 4y = 450 ...1
x + y = 160
2x + 2y = 320 2

Equation 1 – Equation 2

2y = 130

y = 65

Hence, option A is correct.

8. Let the capacity of each be 'a' litre

Then quantity of milk in container after mixing is

$(\frac{3}{5} + \frac{7}{10} + \frac{11}{15})a$

$= (\frac{3 \times 6 + 7 \times 3 + 11 \times 2}{30})a$

$= (\frac{61}{30})a$

And quantity of water in container after mixing is

$(\frac{2}{5} + \frac{3}{10} + \frac{4}{15})a$

$= (\frac{29}{30})a$

⇒ required ratio of milk to water after mixing

$= \dfrac{(\frac{61}{30})a}{(\frac{29}{30})a}$ = 61:29

Hence option C is correct.

9. Let the required volume of water to be added = x ml

When added to 7 ml lotion, the total volume = "7 + x" ml

If the lotion contains 70% alcohol, then it contains 30% water

If it contains 35% alcohol, it contains 65% water.

By balancing the volume of water before and after dilution of the lotion, we get :

(Amount of water in lotion before dilution) + (amount of water added) = (amount of water in lotion after dilution)

(30% of 7) + x = (65% of "7 + x")

$\Rightarrow (30 \times \frac{7}{100}) + x = 65 \times \frac{7 + x}{100}$

⇒ 210 + 100x = 65 × (7 + x)

⇒ 210 + 100x = 455 + 65x

⇒ 35x = 245

⇒ x = 7

Hence, option (C) is correct.

10. The quantity of milk in the mixture

$$= 35 \times \frac{4}{7} = 20 \text{ litres}$$

The quantity of water in the mixture = 35 – 20 = 15 litres

Now, let the quantity of water added to the mixture be x litres. Then water becomes 60% of the total quantity of mixture.

∴   Required % of water in mixture

$$= \frac{\text{Total quantity of water}}{\text{Total quantity of mixture}} = 60\%$$

$$\frac{15 + x}{35 + x} = \frac{3}{5}$$

⇒ 75 + 5x = 105 + 3x

⇒ 2x = 30

∴ x = 15 litres.

Hence, option D is correct.