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Mixture n Alligation Questions for IBPS RRB OFFICE ASST. (MAINS), IBPS RRB SCALE I (MAINS) and IBPS PO (MAINS) Exams.

Mixture n Alligation Quiz 2

Directions: In each of the following questions, read the given statement and compare the Quantity I and Quantity II on its basis. (only quantity is to be considered)

1. A seller has three varieties of pulses. Cost price of pulse-A is Rs. 40/kg, pulse-B is (40+y)/kg and pulse-C is average of A and B. He prepares a mixture by mixing B and C in equal amount such that A has 20% of total weight in the mixture. He sells the mixed pulses at the cost price of B such that the profit is 15(5/13)%. Find the cost price of pulse-B.

A. Rs. 20 B. Rs. 30 C. Rs. 40 D. Rs. 50 E. Rs. 60

2. Three containers A, B and C have mixture of pure milk and water. The average of the volume of pure milk in the three containers is 16 litres and average of the volume of the mixture in the three containers is 20 litres. Ratio of water in A, B and C is 2 : 3 : 1. Find the difference between the volume of pure milk in B and C if the sum of volume of mixture in container B and C is 40 litres.

A. 6 litres B. 8 litres C. 12 litres D. 20 litres E. Can't be determined

3. The ratio of milk and water in A and B is 5 : 3 and 4 : 3 respectively. The quantity of A and B is 40 lit and 84 lit respectively. After adding X lit of pure milk to mixture B the ratio of milk and water becomes 16 : 9. If A and B are mixed, what is the amount of milk in the final mixture?

A. 84 B. 150 C. 120 D. 89 E. 96

4. In a container, 400 litres of milk is present. 25 litres of milk is taken out of the container, and 75 litres of water is added to the same container, and then again 60 litres of the mixture taken out from the container and 35 litres of water is added to the container. After this, again 119 litres of the mixture is taken out of container, find the amount of resultant milk that remains in the container.

A. 234 litres B. 224 litres C. 248 litres D. 232 litres E. 216 litres

5. A container contains mixture of water and milk in which ratio of water to milk is 7 : 19. 416 litres of mixture is taken out of the container and added 108 litres of milk in the mixture which remained in the container such that the respective ratio of water to milk in the container finally becomes 14 : 47. Find the difference between the initial quantity of water and milk in the container.

A. 360 litres B. 480 litres C. 420 litres D. 510 litres E. 444 litres

6. 144 litre milk and water mixture has 83.33% milk concentration. 42 litre of mixture is drawn out and 11 litre of milk and 3 litre of water is added. What is the concentration of milk in final mixture?

A. 82.76% B. 72.45% C. 84.45% D. 80.24% E. 79.21%

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7. A milk man has two containers namely W and M with volume 20 litre and 150 litre respectively. The W is full of water and the M is full of pure milk. He has two other empty containers as well namely P and Q with volume 50 litre and 60 litre. He fills both with some pure milk and water such that both are completely full. Finally he pours the water left in W, if any, into M. (He always fills P and Q in integer number of litres till brim.)

(I) The container M is 60% empty.

(II) If the volume of pure milk he filled into P and Q were equal, maximum volume of water in Q could be 20%.

(III) If ratio of pure milk in P to Q filled was 5:6, and he didn't fill P and Q with only pure milk, then remaining volume of water in W was 9 litres.

A. Only I and II is correct. B. Only I is correct. C. Only II and III is correct.
D. Only I and III is correct. E. Only III is correct.

8. **Container A has a 96lit mixture of milk and water in the ratio 7:5 , after adding 24 lit of pure milk the mixture is sold at cost price of pure milk which gives a profit of 'P%'. Another mixture B when sold as pure milk gives a profit of '0.4P%', if there is 28lit of water in mixture B what is the quantity (in lit) of milk?**

A. 140 B. 120 C. 150 D. 144 E. 96

9. **A milkman has a container full of pure milk. He sells 2 litres from it to first house and pours water in it so that the container is again full. He then sells 4 litres of mixture to second house and again adds up water so that the container is full. If the ratio of pure milk to water in the container before he sells the mixture to third house was 18 : 7, find, what was the amount of pure milk in the container, when he sold to the first house.**

A. 12 B. 16 C. 20 D. 24 E. 30

10. **In a container with 'X' liters of milk, 80 liters of milk is replaced with 40 liters of water making the concentration of milk equal to 80% in the mixture. Another container has 'X+Y' liters of milk and if 60 liters of water is added to it the ratio of milk and water will become 5 : 1. What is the value (in liters) of Y?**

A. 75 B. 50 C. 60 D. 30 E. None of these

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Correct Answers:

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

Explanation:

1.

Cost price of C = $\frac{[40 + (40 + y)]}{2}$ = 40 + 0.5y

He mixes them in 20% : 40% : 40% = 1 : 2 : 2

Cost price of the mixture

= $\frac{[1 \times 40 + 2 \times (40 + y) + 2 \times (40 + 0.5y)]}{5}$ = 40 + 0.6y

He sells it as Rs. (40 + y) at profit of $15\frac{5}{13}$ % = $\frac{200}{13}$ %

Thus, (40 + 0.6y) + $\frac{2}{13}$ × (40 + 0.6y) = 40 + y → y = 20

Cost price of B = 40 + 20 = Rs. 60

Hence, option E is correct.

2.

Total volume of water = 20 × 3 – 16 × 3 = 12

Volume of water in B and C = $\frac{3}{6}$ × 12

and $\frac{1}{6}$ × 12 = 6 and 2 litres respectively.

We can find that the sum of pure milk in B and C = 40 – (6 + 2) = 32 litre

But we cannot find the difference between the volume of pure milk in B and C.

Hence, option E is correct.

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3.

In A, Milk = $\frac{5}{8} \times 40 = 25$ lit

In B, Milk = $\frac{4}{7} \times 84 = 48$ lit

Water = 36 lit

When ratio becomes 16 : 9

Milk = $36 \times \frac{16}{9} = 64$ lit

When both are mixed together, milk = 64 + 25 = 89 lit

Hence, option D is correct.

4.

Amount of milk in container after taking 25 litres milk = 400 – 25 = 375 litres

Ratio of milk and water after adding 75 litres of water = 375 : 75 = 5 : 1

Amount of milk in 60 litres mixture

$= \frac{5}{6} \times 60 = 50$ litres

Amount of water in 60 litres mixture

$= \frac{1}{6} \times 60 = 10$ litres

Remaining milk in container = 375 – 50 = 325 litres

Remaining water in container = 75 – 10 = 65 litres

Ratio of milk and water after addition of 35 litres of water = 325 : (65 + 35) = 325 : 100 = 13 : 4

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Amount of milk taken out in 119 litres mixture

$= \frac{13}{17} \times 119 = 91$ litres

Resultant milk in container = 325 – 91 = 234 litres

Hence, option A is correct.

5.

Let the initial quantities of water and milk in the container be 7x litres and 19x litres respectively.

Water in 416 litres of mixture

$= \frac{416}{26} \times 7 = 112$ litres

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Milk in 416 litres of mixture

$= \frac{416}{26} \times 19 = 304$ litres

According to question:

$$\frac{(7x - 112)}{(19x - 304 + 108)} = \frac{14}{47}$$

$329x - 5264 = 266x - 2744$

$63x = 2520$

$x = 40$

Difference = $19x - 7x = 12x = 480$ litres

Hence, option B is correct.

6.

Mixture = 144 litre

Milk : Water = 5 : 1

Milk = $\frac{5}{6} \times 144 = 120$ litre, Water = 24 litre

42 litre mixture is drawn out

Milk = $120 - \frac{5}{6} \times 42 = 85$

Water = $24 - \frac{1}{6} \times 42 = 17$

After adding 11 litre milk and 3 litre water

Milk = 85 + 11 = 96

Water = 17 + 3 = 20

Mixture = 96 + 20 = 116

$\frac{\text{Milk}}{\text{Mixture}} = \frac{96}{116} \times 100 = 82.76\%$

Hence, option A is correct.

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7.

Volume of W = 20 Litre

Volume of M = 150 Litre

Volume of P = 50 Litre

Volume of Q = 60 Litre

Total volume in W + M = 150 + 20 = 170 litre

Total volume P + Q = 50 + 60 = 110 litre

(I) The container M is 60% empty.

Volume left in W and M after filling P + Q = 170 – 110 = 60 litre.

Volume of mixture in M = 60 litre

Percentage of empty M = $\frac{150 - 60}{150} \times 100 = 60\%$

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(II) If the volume of pure milk he filled into P and Q were equal, maximum volume of water in Q could be 20%

.
He has water 20 litre.

Say if he fills P with pure milk at 40 litres, the volume of pure milk in Q would also be 40 litres. Now P is empty 10 litre and the Q is empty 20 litres. Total needed water to fill P and Q till brim would be 10 + 20 = 30 litres. Which is impossible.

Now, let the milk in P is ‘p’ litres so in Q it is also ‘p’ litres. Total volume of milk in P and Q together = p + p = 2p.

Total volume of P and Q container = 110 litre.

Maximum volume of water = 20 litres

Means, 110 – 2p = 20

p = 45

So, volume of water in Q = 15 litre

Percentage = $\frac{15}{60} \times 100 = 25\%$

(III) If ratio of pure milk in P to Q filled was 5:6, and he didn't fill P and Q with only pure milk, then remaining volume of water in W was 9 litres.

The volume of milk in P and Q could be 5y and 6y litre. Total volume of milk would be 11y litres.

Since, P and Q must be filled till brim and the volume of water is 20 litre, we have some limited options to choose value for 'y'.
P and Q together need 110 litre of mixture, but only 20 litre is water. So, 90 litre must be pure milk.

Thus, possible values for y are 9 and 10.

Now, if choose y = 10, volume of milk in P and Q together would be 110 litres. Means there would be no space for water. But question says that there was no pure milk in P and Q.

It means only possible value for y = 9.

When y = 9, volume of pure milk in P and Q together = 99 litre.

Volume of water needed to fill P and Q till brim = 110 – 99 = 11 litres.

Volume of water left in W = 20 – 11 = 9 litres.

Hence, option D is correct.

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8.

In Container A,

Milk = $\frac{7}{12} \times 96 = 56$lit,

Water = $\frac{5}{12} \times 96 = 40$lit

After adding 24lit milk

Milk = 56 + 24 = 80 lit, Water = 40 lit

Profit = $\frac{40}{80} \times 100 = 50\%$

Profit on selling mixture B = $0.4 \times 50 = 20\%$

$\frac{\text{Water}}{\text{Milk}} = \frac{2}{10}$

Water : Mil = 1 : 5

Water = 28 lit → Milk = 140 lit

Hence, option A is correct.

9.

Let the container had y liters of pure milk, then

After giving milk to first house and adding 2 litres water to it, we have

Pure milk = y – 2

Water = 2

Ratio of pure milk to water in the container = (y – 2) : 2

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On giving 4 litres milk mixture to second house, he would have in container

Pure milk = $(y - 2) - [\frac{4(y-2)}{y}] = (y - 2)\frac{(y-4)}{y}$

Water = $2 - [\frac{4 \times 2}{y}] = \frac{(2y-8)}{y}$

On adding 4 litres water to it, the container would have

Pure milk = $(y - 2)\frac{(y-4)}{y}$

Water = $\frac{(2y-8)}{y} + 4 = \frac{(6y-8)}{y}$

Ratio = Pure milk : water

$= [(y - 2)\frac{(y-4)}{y}] : [\frac{(6y-8)}{y}] = (y - 2)(y - 4) : (6y - 8)$

This ratio must be 18 : 7, we

$(y - 2)(y - 4) : (6y - 8) = 18 : 7$

We have to find 'y', so we put each option in the left hand side of the ratio and verify which option is correct.

We see that y = 20 is correct choice.

Hence, option C is correct.

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10.

Initially milk = X liters

After drawing out 80 liters of milk and adding 40 liters of water, milk = 80%

So, Milk : Water = 80 : 20

Milk : Water = (X – 80) : 40 = 80 : 20

X = 240

X + Y = 240 + Y

(240 + Y) : 60 = 5 : 1

240 + Y = 300

Y = 60 liters

Hence, Option C is correct.

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