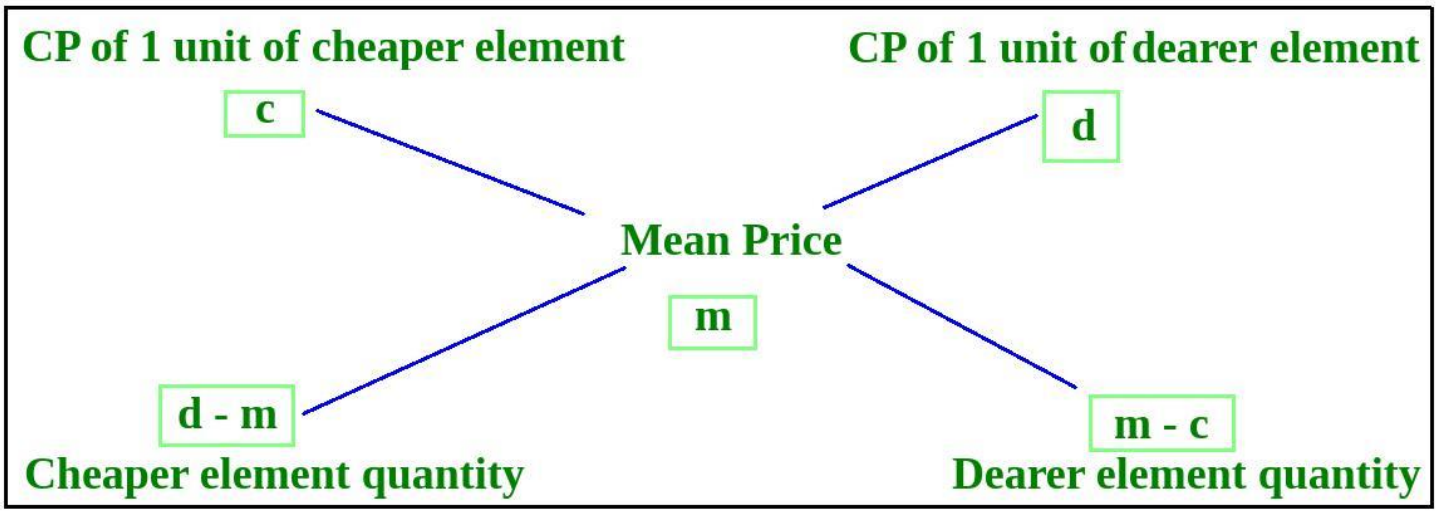
MIXTURE and ALLIGATION

ALLIGATIONS

The technique of alligation is applicable in all the cases where two extreme values are given and oneaverage value is given. It is a very useful technique which can be applied in chapters like Percentage, Simple interest, Ratio & proportion, Average etc.
This technique enables us to calculate the ratio in which extreme values/ prices/ interests/ ratios andaverages should be mixed so that a given average value/price/interest/ratio and average can be obtained.
Alligation is the rule that enables us to find the proportion in which the two or more ingredients at thegiven price must be mixed to produce a mixture at a given price. Thus,

$$\frac{\text{Quantity of cheaper}}{\text{Quantity of dearer}} = \frac{\text{(C.P. of dearer) - (Mean Price)}}{\text{Mean Price - CP of cheaper}}$$

Find it complicated to remember the Formula?? Don't worry, keep in mind the below short cut by following the direction of the arrows:



Attention please !!

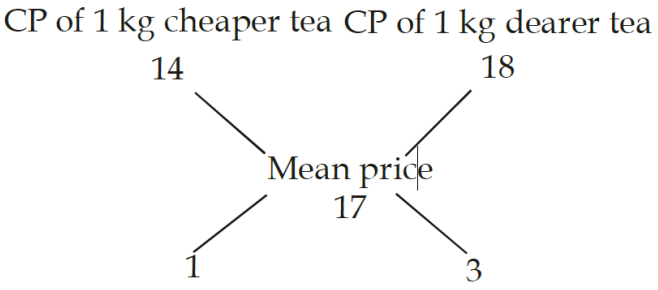
- Mean price is always less then dearer price and is always more than cheaper price.
- The price of the first kind should always be on the left hand side.
- Keep in mind the simple point that the order of the ratio follows the order of what is written at the top.

MIXTURES

Mixture or alloys contains two or more ingredients of certain quantity mixed together to get a desired quantity. The quantity can be expressed as a ratio or percentage. For example: 1 liter of a mixture contains 250ml water and 750 ml milk. That means, ¼ of mixture is water and ¾ of mixture is milk. In other words, 25% of mixture is water and 75% of mixture is milk.

Example: In what proportion must tea at Rs. 14 per kg be mixed with tea at Rs. 18 per kg, so that the mixture be worth Rs. 17 a kg?

Sol.



$$\frac{\text{Quantity of cheaper}}{\text{Quantity of dearer}} = \frac{18-17}{17-14} = \frac{1}{3} = 1:3$$

Concept 2. A container has milk and water in the ratio a:b, a second container of some capacity as first are has milk and water in the ratio c:d. If both the mixture are emptied into a third container, then the ratio of milk to water in third container is given by:

$$[\,a/(a+b)] + [\,c/(c+d)] \;:\; [\,b/(a+b)] + [\,d/(c+d)]$$

Example: There are two containers of equal capacity. The ratio of milk to water in the first container is 3 : 1, in the second container is 5 : 2. If they are mixed up, then the ratio of milk to water in the mixture will be?

Sol. Part of milk in first container $= \frac{3}{3+1} = \frac{3}{4}$

Part of water in first container $= \frac{1}{3+1} = \frac{1}{4}$

Similarly, part of milk in second container $= \frac{5}{5+2} = \frac{5}{7}$

Part of water in second container $= \frac{2}{5+2} = \frac{2}{7}$

$\therefore$ Required $= \frac{3}{4}+\frac{5}{7} : \frac{1}{4}+\frac{2}{7} = \frac{41}{28} : \frac{15}{28} = 41:15$

Concept 3: Suppose a container contains 'x' units of a liquid from which 'y' units are taken out and replaced by water. After n operation, quantity of pure liquid:

$$= x\left(1-\frac{y}{x}\right)^{n} \text{ units}$$

Example: A container contains 40 litres of milk. From this container 4 litres of milk was taken out and replaced by water. This process was repeated further two times. How much milk is now contained by the container?

Sol. Amount of milk left after 3 operations :

$$= \left[40\left(1-\frac{4}{40}\right)^{3}\right] \text{litres} = \left(40\times\frac{9}{10}\times\frac{9}{10}\times\frac{9}{10}\right) = 29.16 \text{ litres.}$$

FOUNDATION :

1. In a mixture of milk and water of the volume of 60 litre the ratio of milk to water is 7 : 5. How much quantity of water will be added to make mixture of equal ratio?
A. 8 Litre B. 10 Litre C. 15 Litre D. 20 Litre E. None of these
2. In a mixture of milk and water of the volume of 30 Litre, the ratio of milk and Water is 8 : 7. How much water should be added in mixture to make ratio 4 : 5?
A. 6 Litre B. 4.5 Litre C. 5 Litre D. 5.5 Litre E. None of these
3. In what ratio must oil at Rs. 62 per kg be mixed with oil of Rs. 72 per kg, so that the mixture must be worth Rs. 64.50 per Kg?
A. 1 : 3 B. 1 : 2 C. 3 : 1 D. 4 : 1 E. None of these
4. A mixture of milk and water measures 60 ltr. It contains 20% water. How many litres of water should be added to it so that water may be 25%?
A. 6 ltr B. 4 ltr C. 8 gallons D. 10 ltr E. None of these
5. In what ratio must a grocer mix two varieties of pulses costing Rs. 15 and Rs. 20 per kg respectively so as to get a mixture worth Rs. 16.5 per kg?
A. 3 : 7 B. 5 : 7 C. 7 : 3 D. 7 : 5 E. None of these
6. A dishonest milkman professes to sell his milk at cost price but he mixes it with water and thereby gains 25%. The percentage of water in the mixture is?
A. 4% B. 6% C. 20% D. 25% E. None of these
7. Find the ratio in which rice at Rs. 7.20 a kg be mixed with rice at Rs. 5.70 a kg to produce a mixture worth Rs. 6.30 a kg?
A. 1 : 3 B. 2 : 3 C. 3 : 4 D. 4 : 5 E. None of these
8. Aditya and Sanjay started a business investing 45000 and 30000 respectively. What will be the ratio between their profit?
A. 2 : 3 B. 3 : 2 C. 4 : 9 D. Cant be determinedE. None of these
9. In what ratio must sugar at Rs. 2 per kg be mixed with sugar at Rs. 3.50 per kg so that the mixture be worth Rs. 2.50 per kg?
A. 2 : 1 B. 1 : 5 C. 3 : 1 D. 2 : 3 E. None of these
10. 600 gm of Sugar solution has 40% sugar in it. How much sugar should be added to make it 50% in the solution?
A. 60 gm. B. 90 gm. C. 120 gm. D. 150 gm. E. None of these
11. Gold is 21 times heavy as compared to water and copper is 11 times heavy as compared to water. In what ratio should these metal be mixed so that the mixture may be 17 times as heavy as water?
A. 1 : 2 B. 2 : 1 C. 3 : 1 D. 3 : 2 E. None of these
12. I have 100 books of English. I sold some of these at a profit of 12% and rest at 8% loss. On the whole I got a profit of 11%. How many books were sold at 12% profit by me?
A. 50 B. 56 C. 57 D. 60 E. 95
13. There are 3 tub which contains mixtures of Milk and Water in the ratio of 5 : 2, 4 : 3 and 3 : 1 respectively. If the mixtures be poured in a single tub. Find the Ratio Milk and Water?
A. 13 : 3 B. 19 : 9 C. 17 : 9 D. Can't be determine E. None of these
14. In what proportion must be Sugar of Rs. 17 per kg mixed with Sugar of Rs. 29 per kg to make mixture of Rs. 20 per kg?
A. 2 : 3 B. 17 : 29 C. 29 : 17 D. 3 : 1 E. None of these
15. In what proportion must pulse of Rs. 70 per kg be mixed with pulse of Rs. 45 per kg to get a mixture of Rs. 60 per Kg?
A. 9 : 13 B. 13 : 9 C. 14 : 9 D. 3 : 2 E. None of these
16. A shopkeeper has Rs. 50 kg of rice, of part of which he sells at 10% profit and the rest at 5% loss. He gains 7% on the whole. What is the quantity sold at 10% gain?
A. 50 B. 40 C. 10 D. Can't be determined E. None of these
17. A man buys 2 Cow for Rs. 2700 and sells one for loss of 6% and on other he gain 7.5%. On the whole he neither gained nor lost. What does 2 nd Cow cost?

A. 1100 B. 1000 C. 1200 D. 6075 E. None of these

18. Aditya, Sonal and Nutan contributed Rs. 50,000 for business. Aditya contributed Rs. 4000 more than Sonal and Sonal contributed Rs. 5,000 more than Nutan. Out of total profit of Rs. 70,000 how much did Aditya receive?

A. Rs. 16,000 B. Rs. 18,000 C. Rs. 20,000 D. Rs. 29400 E. None of these

19. The ratio in which two sugar solutions of the concentrations 15% and 40% are to be mixed to get a solution of concentration 30% is:

A. 2 : 3 B. 3 : 2 C. 8 : 9 D. 9 : 8 E. None of these

20. Nikita bought 30 kg of wheat at the rate of Rs. 9.50 per kg and 40 kg of wheat at the rate of Rs. 8.50 per kg and mixed them. She sold the mixture at the rate of Rs. 8.90 per kg. Her total profit or loss in the transaction was:

A. Rs. 2 loss B. Rs. 2 profit C. Rs. 7 loss D. Rs. 7 profit E. None of these

21. A mixture of a certain quantity of milk with 16 litres of water is worth 90 P per litre. If pure milk be worth Rs. 1.08 per litre. How much milk is there in the mixture?

A. 40 litres B. 50 litres C. 60 litres D. 80 litres E. None of these

22. A person has a chemical of Rs. 25 per litre. In what ratio should water be mixed in the mixture so that by selling it at Rs. 20 per litre he may get a profit of 25%?

A. 14 : 9 B. 16 : 9 C. 9 : 14 D. 9 : 16 E. None of these

23. A mixture of 40 litres of milk and water contains 10% water. How much water must be added to make 20% water in the new mixture?

A. 3 litres B. 4 litres C. 5 litres D. 6 litres E. None of these

24. If 2 kg of metal, of which 1/3 is zinc and the rest is copper, be mixed with 3 kg of metal, of which 1/4 is zinc and the rest is copper, what is the ratio of zinc to copper in the mixture?

A. 13 : 42 B. 17 : 43 C. 19 : 43 D. 15 : 42 E. None of these

25. 50 g of an alloy of gold and silver contains 80% gold (by weight). The quantity of gold, that is to be mixed up with this alloy, so that it may contain 95% gold, is:

A. 200 g B. 150 g C. 50 g D. 10 g E. None of these

26. A sum of Rs. 6.40 is made up of 80 coins which are either 10-paise or 5-paise coins. How many are coins of 5-paise are there?

A. 24 B. 28 C. 32 D. 36 E. None of these

27. How much tea at Rs. 4 a kg should be added to 15 kg of tea at Rs. 10 per kg so that the mixture be worth Rs.6.50 a kg?

A. 15 kg B. 35 kg C. 25 kg D. 21 kg E. None of these

28. Gold is 19 times as heavy as water and copper is 9 times as heavy as water. In what ratio should these metals be mixed so that the mixture may be 15 times as heavy as water?

A. 2 : 3 B. 3 : 2 C. 2 : 4 D. 4 : 2 E. None of these

29. A pot contains 81 litres of pure milk. 1/3 of the milk is replaced by the same amount of water. Again 1/3 of the mixture is replaced by that amount of water. The ratio of the milk and water in the new mixture is?

A. 1 : 2 B. 1 : 1 C. 2 : 1 D. 4 : 5 E. None of these

30. A man has 60 pens. He sells some of these at a profit of 12% and the rest at 8% loss. On the whole, he gets a profit of 11%. How many pens were sold at 12% profit:

A. 47 B. 52 C. 55 D. 57 E. None of these

MODERATE :

1. In what ratio must water be mixed with milk to gain 16% on selling the mixture at cost price?

A. 1 : 6 B. 4 : 25 C. 2 : 3 D. 4 : 3 E. None of these

2. In what ratio must a grocer mix two varieties of tea worth Rs. 60 per kg and Rs. 65 per kg so that by selling the mixture at Rs. 68.20 per kg he may gain 10%?

A. 3 : 2 B. 3 : 4 C. 3 : 5 D. 4 : 5 E. None of these

3. A milk vendor has 2 cans of milk. The first contains 25% water and the rest milk. The second contains 50% water. How much milk should he mix from each of the containers so as to get 12 litres of milk such that the ratio of water to milk is 3 : 5?
A. 4 litres, 8 litres B. 6 litres, 6 litres C. 5 litres, 7 litres D. 7 litres, 5 litres E. None of these
4. How many kilogram of sugar costing Rs. 9 per kg must be mixed with 27 kg of sugar costing Rs. 7 per kg so that there may be a gain of 10% by selling the mixture at Rs. 9.24 per kg?
A. 36 kg B. 42 kg C. 54 kg D. 63 kg E. None of these
5. A container contains 50 litres of milk. From this container 5 litres of milk was taken out and replaced by water. This process was repeated further two times. How much milk is now contained by the container?
A. 26.34 litres B. 27.36 litres C. 28 litres D. 36.45 litres E. None of these
6. In a mixture of milk and water of volume 30 Litre the ratio of water and milk is 3 : 7. How much quantity of water will be added to the mixture to make the ratio of milk and water 1 : 2
A. 23 Litre B. 21 Litre C. 12 Litre D. 33 Litre E. None of these
7. The cost of Type 1 rice is Rs. 15 per kg and Type 2 rice is Rs. 20 per kg. If both Type 1 and Type 2 are mixed in the ratio of 2 : 3, then the price per kg of the mixed variety of rice is?
A. Rs. 18 B. Rs. 18.50 C. Rs. 19 D. Rs. 19.50 E. None of these
8. A merchant has 1000 kg of sugar, part of which he sells at 8% profit and the rest at 18% profit. If he gains 14% on the whole then the quantity sold at 18% profit is:
A. 400 kg B. 560 kg C. 600 kg D. 640 kg E. None of these
9. In an Examination out of 900 students 85% of the boys and 70% of girls passed. How many girls appeared in the examination, if total pass percentage was 75%?
A. 400 B. 500 C. 600 D. 700 E. None of these
10. 400 gm of salt solution has 40% salt in it. How much salt should be added to make it 50% in the solution?
A. 60 B. 70 C. 65 D. 80 E. None of these
11. Chocolates at Rs. 12.00 per dozen is mixed with chocolate at Rs.10.00 per dozen in the ratio 3 : 5. Find the price per dozen of the mixture?
A. Rs. 11.00 B. Rs. 9.90 C. Rs. 11.50 D. Rs. 10.75 E. None of these
12. Pencils at Rs. 4.20 per dozen is mixed with pencils at Rs. 5.40 per dozen in the ratio 3 : 5. Find the price per dozen of the mixture?
A. Rs. 4.95 B. Rs. 4.50 C. Rs. 5.00 D. Rs. 5.05 E. None of these
13. A mixture of 48 litre of milk and water contains 10% of water. How much water must be added to make 20% water in the new mixture?
A. 2 B. 6 C. 4 D. 5 E. None of these
14. A vessel of 160 litre is filled with Milk and Water. 70% of Milk and 30% of Water is taken out of the vessel. After this task, it is found that vessel is now filled by 55% quantity of Milk and Water. What is the original quantity of milk and water in the vessel respectively?
A. 60, 100 B. 100, 60 C. 70, 90 D. 90, 70 E. None of these
15. A mixture of 80 litre of milk and water contains 10% water. How much water must be added to make 20% water in the new mixture?
A. 5 litre B. 8 litre C. 10 litre D. 15 litre E. None of these
16. A tub contains a mixture of two liquid P and Q in the ratio of 4 : 1. When 10 Litre of the mixure is taken out and 10 Litre of Liquid Q is poured in the jar, the ratio becomes 2 : 3. How many litre of liquid P was contained in the jar?
A. 10 litre B. 15 litre C. 20 litre D. 16 litre E. None of these
17. A bottle contains 81 litres of pure milk. 1/3 of the milk is replaced by the same amount of water. Again 1/3 of the mixture is replaced by that amout of water. The ratio of the milk and water in the new mixture is:
A. 1 : 2 B. 1 : 1 C. 2 : 1 D. 4 : 5 E. None of these
18. Aditya and Manish continued in a joint business for 36 months. Aditya contribute Rs. 300 for certain time and Manish invested Rs.500 for remaining time. If out of total profit of Rs. 1020, Aditya gets Rs. 495, then for how long Aditya kept his money?
A. 16 months B. 14 months C. 8 months D. 22 months E. None of these

19. A jar contained a mixture of two liquids A and B in the ratio 3 : 2. When 5 litres of the mixture was taken out and 5 litres of liquid B was poured in the jar, this ratio became 2 : 3. The quantity of liquid A contained in the jar initially was:

A. 4 litres B. 8 litres C. 9 litres D. 32 litres E. None of these

20. A man has 40 kg of tea, a part of which he sells at 5% loss and the rest at the cost price. In this business he incurs a loss 3%. Find the quantity which he sells at the cost price?

A. 12 kg B. 14 kg C. 16 kg D. 18 kg E. None of these

21. In a mixture of 75 litres, the ratio of milk to water is 2:1. The amount of water to be further added to the mixture so as to make the ratio of the milk to water 1 : 2 will be:

A. 45 litres B. 60 litres C. 75 litres D. 80 litres E. None of these

22. How many kg. of salt at 42 P per kg. must a man mix with 25 kg of salt at 24 P per kg, so that he may, on selling the mixture at 40 P per kg, gain 25% on the outlay?

A. 20 B. 30 C. 40 D. 50 E. None of these

23. 300 gm of sugar solution has 40% sugar in it. How much. sugar should be added to make it 50% in the solution?

A. 40 gm B. 50 gm C. 60 gm D. 80 gm E. None of these

24. A dishonest milkman professes to sell his milk at cost price but he mixes it with water and thereby gains 25% The percentage of water in the mixture is:

A. 25% B. 35% C. 45% D. 50% E. None of these

25. 200 litres of mixture contains 15% water and the rest is milk. The amount of milk that must be added so that the resulting mixture contains 87.5% milk is:

A. 30 litre B. 35 litre C. 40 litre D. 45 litre E. None of these

26. In a zoo, there are rabbits and pigeons. If the heads are counted, there are 200 and if legs are counted, there are 580. How many pigeons are three?

A. 105 B. 110 C. 115 D. 120 E. None of these

27. The ratio of milk and water in 66 litre of adulterated milk is 5 : 1. Water is added to it to make the ratio 5 : 3. The quantity of water added is:

A. 20 litres B. 22 litres C. 24 litres D. 28 litres E. None of these

28. A sum of Rs. 41 was divided among 50 children. Each boy gets 90 paise and each girl 65 paise. The number of boys is?

A. 32 B. 34 C. 36 D. 38 E. None of these

29. Milk and water are mixed in vessel A in the ratio of 5:2 and in vessel B in the ratio of 8 : 5. In what ratio should quantities be taken from the two vessels so as to form a mixture in which milk and water will be in the ratio of 9 : 4?

A. 7 : 2 B. 5 : 2 C. 2 : 7 D. 2 : 5 E. None of these

30. In a bag, there are three types of coins 1 rupee, 50-paise and 25-paise in the ratio 3 : 8 : 20. There total value is Rs. 372. The total number of coins is:

A. 1200 B. 961 C. 744 D. 612 E. None of these

PREVIOUS YEAR MEMORY BASED :

1. There are two containers of equal capacity. The ratio of milk to water in the first container is 3 : 1, in the second container is 5 : 2. If they are mixed up, then the ratio of milk to water in the mixture will be:

A. 28 : 41 B. 41 : 28 C. 15 : 41 D. 41 : 15 E. None of these

2. In a mixture of 60 L the ratio of acid and water is 2 : 1. If the ratio of acid and water is to be 1 : 2, then the amount of water (in litres) to be added in mixture is:

A. 55 B. 60 C. 50 D. 45 E. None of these

3. In a mixture of 25 L, the ratio of acid to water is 4 : 1. Another 3 L of water is added to the mixture. The ratio of acid to water in the new mixture is:

A. 5 : 2 B. 2 : 5 C. 3 : 5 D. 5 : 3 E. None of these

4. In a 729 L mixture of milk and water, the ratio of milk to water is 7 : 2. To get a new mixture containing milk and water in the ratio 7 : 3, the amount of water to be added is:

A. 81 L B. 71 L C. 56 L D. 50 L E. None of these

5. In a mixture of 75 L, the ratio of milk to water is 2 : 1. The amount of water to be further added to the mixture so as to make the ratio of the milk to water 1 : 2 will be:

A. 45 L B. 60 L C. 75 L D. 80 L E. None of these

6. A barrel contains a mixture of wine and water in the ratio 3 : 1. How much fraction of the mixture must be drawn off and substituted by water so that the ratio of wine and water in the resultant mixture in the barrel becomes 1 : 1?

A.1/4 B.1/3 C. 4/3 D.23 E. None of these

7. A mixture contains spirit and water in the ratio 3 : 2. If it contains 3L more spirit than water, the quantity of spirit in mixture is:

A. 10L B. 12 L C. 8 L D. 9 L E. None of these

8. Two vessels contain milk and water in the ratio 3 : 2 and 7 : 3. Find the ratio in which the contents of the two vessels have to be mixed to get a new mixture in which the ratio of milk and water 2 : 1?

A. 2 : 1 B. 1 : 2 C. 4 : 1 D. 1 : 4 E. None of these

9. A can contains a mixture of two liquids A and B in the ratio 7 : 5 . When 9 L of mixture is drained off and the can is filled with B, the ratio of A and B becomes 7 : 9. How many litres of liquid A was contained by the can initially?

A. 10 B. 20 C. 21 D. 25 E. None of these

10. The vessels A and B contains acid and water in the ratio 4 : 3 and 5 : 3 respectively. Then, the ratio in which these mixtures to be mixed to obtain a new mixture in vessel C containing acid and water in the ratio 3 : 2 is:

A. 5 : 8 B. 7 : 8 C. 7 : 5 D. 4 : 7 E. None of these

11. Acid and water are mixed in a vessel A in the ratio of 5 : 2 and in the vessel B in the ratio 8 : 5. In what proportion should quantities be taken out from the two vessels so as to form a mixture in which the acid and water will be in the ratio of 9 : 4?

A. 7 : 2 B. 2 : 7 C. 7 : 4 D. 2 : 3 E. None of these

12. The acid and water in two vessels A and B are in the ratio 4 : 3 and 2 : 3. In what ratio should the liquids in both the vessels be mixed to obtain a new mixture in vessel C containing half acid and half water?

A. 7 : 5 B. 5 : 7 C. 7 : 3 D. 5 : 3 E. None of these

13. A mixture contains wine and water in the ratio 3 : 2 and another mixture contains them in the ratio 4 : 5. How many litres of the latter must be mixed with 3 L of the former so that the resulting mixture may contain equal quantities of the wine and water?

A. 5 2/5 L B. 5 2/3 L C. 4 1/2 L D. 3 3/4 L E. None of these

14. In the first alloy, zinc and copper are in the ratio 1 : 2. In the second alloy the same elements are in the ratio 2 : 3. If these two alloys be mixed to form a new alloy in which two elements are in the ratio 5 : 8, the ratio of these two alloys in the new alloy is:

A. 3 : 10 B. 3 : 7 C. 10 : 3 D. 7 : 3 E. None of these

15. A and B are two alloys of gold and copper prepared by mixing metals in the ratio 5 : 3 and 5 : 11, respectively. Equal quantities of these alloys are melted to form a third alloy C. The ratio of gold and copper in the alloy C is:

A. 25 : 33 B. 33 : 25 C. 15 : 17 D. 17 : 15 E. None of these

16. Two types of alloys contain gold and silver in the ratio of 7 : 22 and 21 : 37. In what ratio should these alloys be mixed, so as to have a new alloy in which gold and silver would exist in the ratio 25 : 62?

A. 13 : 8 B. 8 : 13 C. 13 : 12 D. 6 : 9 E. None of these

17. Pure milk costs 16/L. After adding water the milkman sells the mixture 15/L and thereby makes a profit of 25%. In what respective ratio does he mix milk with water?

A. 3 : 1 B. 4 : 3 C. 3 : 2 D. 5 : 3 E. None of these

18. The ratio in which two sugar solutions of the concentrations 15% and 40% are to be mixed to get a solution of concentration of 30% is:

A. 2 : 3 B. 3 : 2 C. 8 : 9 D. 9 : 8 E. None of these

19. Milk and water in a mixture are in the ratio 7 : 5. When 15 L of water is added to it, the ratio of milk and water in the new mixture becomes 7 : 8. The total quantity of water in the new mixture is:

A. 35 L B. 40 L C. 60 L D. 96 L E. None of these

20. The ratio of milk and water in mixtures of four containers are 5 : 3, 2 : 1, 3 : 2 and 7 : 4, respectively. In which container is the quantity of milk, relative to water, minimum?
A. First B. Second C. Third D. Fourth E. None of these
21. 60 kg of a certain variety of rice at Rs. 32 per kg is mixed with 48 kg of another variety of rice and the mixture is sold at the average price of Rs. 28 per kg. If there is no profit or loss due to the new sale price, the price of second veriety of rice per kg is:
A. Rs. 25.60 per kg B. Rs. 25 per kg C. Rs. 23 per kg D. Rs. 30 per kg E. None of these
22. The ratio, in which tea costing Rs. 192 per kg is to be mixed with tea costing Rs. 150 per kg so that the mixed tea, when sold for Rs. 194.40 kg gives a profit of 20% is:
A. 2 : 5 B. 3 : 5 C. 5 : 3 D. 5 : 2 E. None of these
23. There are 81 L pure milk in a container. One third of milk is replaced by water in the container. Again, one third of mixture is extracted and equal amount of water is added. What is the ratio of milk to water in the new mixture?
A. 1 : 2 B. 1 : 1 C. 2 : 1 D. 4 : 5 E. None of these
24. In 50 g alloy of gold and silver, the gold is 80% by weight. How much gold should be mixed to this alloy, so that the weight of gold would become 95%?
A. 200 g B. 150 g C. 50 g D. 10g E. None of these
25. An alloy contains copper, zinc and nickel in the ratio of 5 : 3 : 2. The quantity of nickel in kg that must be added to 100 kg of this alloy to have the new ratio 5 : 3 : 3 is:
A. 8 B. 10 C. 12 D. 15 E. None of these
26. A shopkeeper bought 15 kg of rice at the rate of Rs. 29 per kg and 25 kg of rice at the rate of Rs. 20 per kg. He sold the mixture of both types of rice at the rate of Rs. 27 per kg. His profit in this transaction is:
A. Rs. 125 B. Rs. 150 C. Rs. 140 D. Rs. 145 E. None of these
27. In 40 L mixture of milk and water, the ratio of milk to water is 7 : 1. In order to make the ratio of milk and water 3 : 1, the quantity of water (in litres) that should be added to the mixture will be:
A. 6 B. 6 1/2 C.6 2/3 D.6 3/4 E. None of these
28. A mixture of 30 L contain milk and water in the ratio of 7 : 3. How much water should be added to it so that the ratio of milk and water becomes 3 : 7?
A. 40 L B. 49 L C. 56 L D. 63 L E. None of these
29. Two vessels A and B contain milk and water mixed in the ratio 8 : 5 and 5 : 2, respectively. The ratio in which these two mixtures be mixed to get a new mixture containing 69 3 % 13 milk is
A. 3 : 5 B. 5 : 2 C. 5 : 7 D. 2 : 7 E. None of these
30. Zinc and copper are in the ratio 5 : 3 in 400 g of an alloy. How much of copper (in g) should be added to make the ratio 5 : 4?
A. 72 B. 200 C. 50 D. 66 E. None of these

ANSKEY KEY

FOUNDATION

1 B	2 A	3 C	4 B	5 C	6 C	7 B	8 B	9 A	10 C
11 D	12 E	13 B	14 D	15 D	16 B	17 C	18 D	19 A	20 A
21 D	22 B	23 C	24 B	25 B	26 C	27 D	28 B	29 D	30 D

MODERATE

1 B	2 A	3 B	4 D	5 D	6 D	7 A	8 C	9 C	10 D
11 D	12 A	13 B	14 B	15 C	16 D	17 D	18 D	19 C	20 C
21 C	22 A	23 C	24 E	25 C	26 B	27 B	28 B	29 A	30 B

PREVIOUS YEAR

1 D	2 B	3 A	4 A	5 C	6 B	7 D	8 B	9 C	10 B
11 A	12 A	13 A	14 A	15 C	16 A	17 A	18 A	19 B	20 C
21 C	22 A	23 D	24 B	25 B	26 D	27 C	28 A	29 D	30 C