Mixture & Alligation (15 Questions)

Q1. A container has milk and water in the ratio 7:3. 10 liters of mixture is replaced with water. The new ratio becomes 5:4. Find the initial quantity of the mixture.

Q2. Two types of rice costing ₹60/kg and ₹90/kg are mixed in a ratio such that the cost price of the mixture is ₹75/kg. What is the ratio in which they are mixed?

Q3. A vessel contains a mixture of milk and water in the ratio 4:1. How much of the mixture must be drawn out and replaced with water to make the new ratio 2:3?

Q4. 60 L of a mixture contains milk and water in the ratio 2:1. 15 L of water is added. What is the new ratio?

Q5. A mixture contains 80 L of milk and water in the ratio 5:3. 20 L of the mixture is removed and replaced with water. Find the new ratio.

Q6. How many liters of a 25% alcohol solution must be mixed with a 40% alcohol solution to get 30 liters of a 30% solution?

Q7. A vessel is full of a mixture of alcohol and water in the ratio 7:5. 24 liters of mixture is drawn and replaced with water. The new ratio becomes 1:1. Find the original quantity of mixture.

Q8. A milkman has 120 L of milk. He mixes it with 20% water. He sells the mixture at the cost price of pure milk. What is his gain percentage?

Q9. In what ratio should water be mixed with syrup costing ₹80/L so that the selling price becomes ₹64/L, giving a profit of 20%?

Q10. 30 liters of a mixture contains alcohol and water in ratio 3:2. If 10 liters of the mixture is replaced with alcohol, what is the new ratio?

Q11. A mixture of 60 L has acid and water in 2:1 ratio. 1/3rd is removed and replaced with water. What is the final ratio?

Q12. Two mixtures have alcohol to water ratios of 5:3 and 3:5. In what ratio should they be mixed to get a 1:1 ratio?

Q13. A 30 L mixture of paint has red and blue in 2:1 ratio. How much red must be added to make the ratio 4:1?

Q14. A vessel contains 36 L of milk. Some quantity is replaced with water and the process is repeated 3 times. If the final quantity of milk is 16 L, how much was replaced each time?

Q15. 20 L of a mixture contains milk and water in ratio 3:2. How much water must be added to make the ratio 1:2?

Time, Speed, and Distance (15 Questions)

Q16. A train passes a pole in 20 seconds and a 200 m platform in 35 seconds. Find its length.

Q17. Two trains of length 150 m and 200 m run at 54 km/h and 72 km/h. In how much time will they cross each other moving in opposite directions?

Q18. A man rows upstream at 6 km/h and downstream at 12 km/h. Find speed of the stream.

Q19. A cyclist covers 1/3rd of a distance at 30 km/h, next 1/3rd at 20 km/h, and last 1/3rd at 10 km/h. Find average speed.

Q20. A train running at 90 km/h takes 1 minute to cross a bridge. If the train is 400 m long, what is the length of the bridge?

Q21. A man travels from A to B at 60 km/h and returns at 40 km/h. Find average speed.

Q22. A bus reduces its speed by 10 km/h and takes 2 hours more to reach its destination. If the distance is 300 km, find the original speed.

Q23. A train 120 m long running at 60 km/h overtakes a man running in same direction in 12 seconds. Find man's speed.

Q24. A car travels 300 km in 3 hours and next 240 km in 4 hours. What is the average speed?

Q25. A man can row 10 km downstream in 2 hours and upstream in 5 hours. Find speed of boat in still water.

Q26. A train crosses a platform in 36 seconds and a man standing in 20 seconds. If the train is 240 m long, what is the length of platform?

Q27. A person walks at 10 km/h and arrives 15 minutes early. If he walks at 6 km/h, he is 15 minutes late. Find the distance.

Q28. A man travels 180 km at x km/h. If he had gone 10 km/h faster, the journey would take 1 hour less. Find x.

Q29. A train takes 3 seconds to pass a telegraph post and 33 seconds for a 300 m long platform. Find train's length.

Q30. A train starts from a station and increases speed every minute by 10 km/h. If after 6 minutes its speed is 100 km/h, what was the initial speed?