UNIT TEST PAPER

Arithmetic Problems

1. Convert the following ratios into fractions, decimals, and percentages.
   (i) 5 : 8   (ii) 15 : 16
   (iii) 21 : 25   (iv) 41 : 50
   (v) 27 : 32

2. 12.5% of 8 dozen apples in a fruit-cart are rotten. How many good apples are there in the cart?

3. $8\frac{1}{3}$% of all the flowering plants in a garden are roses. If there are 9 rose plants in the garden, how many flowering plants are there in all?

4. The water level in a lake drops below normal by 28% in one summer week but with a few days of rain, it rises back to normal. What was the percentage rise in the water level after the rains?

5. Pooja receives Rs 275 as pocket money, 30% of which she spends on books, 35% on toys, 15% on candies, and the rest of the pocket money, she saves. How much money does Pooja save?

6. If Mr Sahni earns 37.5% more than Mrs Sahni, by what percentage does Mrs Sahni earn less than Mr Sahni?

7. Tarini spends a fixed amount each month on chewing gum. If the price of chewing gum increases by 12.5%, by what percentage should Tarini reduce her consumption of chewing gum so as to spend the same amount as before?

8. A man willed 70% of all his money to his wife and the rest of the money to his son. If his wife got Rs 338224 more than his son, how much money did the man leave behind?

9. The profit made by a stationer on selling 12 pencils is equal to the selling price of 3 pencils. Find the stationer's gain per cent.

10. If the cost price of 27 mangoes is the selling price of 20 mangoes, find the gain per cent.

11. A trader buys some cloth and spends another 5% of its cost on storing it. If the cloth is sold at a profit of 18% for Rs 9292.50, at what price had the trader bought the cloth?

12. A trader buys 40 bags of cement and marks up a profit of 28% on his cost price. If he then sells all the cement at a 15% discount for Rs 6310.40, what price had he paid for each bag of cement?

13. Represent three successive discounts of 10%, $8\frac{1}{3}$%, and $6\frac{2}{3}$% by a single discount percentage.

14. If a certain principal amounts to Rs 49680 at 5.2% p.a. over 2 years, how much will it amount to in 3 years at the same rate of interest?

15. A loan of Rs 95000 is given in two parts. Part A is given at 12.5% p.a. while part B is given at a higher rate of interest. If the interest on both parts is Rs 12500 after 2 years, how much money was given in part B and at what rate of interest?

16. After 6 months the amount a farmer had to repay the village moneylender was Rs 19993.75 and after 8 months it was Rs 20825.00. How much money had the farmer taken on loan and at what annual rate of interest?

17. What is the ratio of the perimetres of two squares with lengths measuring 8 cm and 8.5 cm?

18. Distribute Rs 5060 between A and B in a 19 : 21 ratio.

19. An alloy is made by mixing metal A and metal B in a 7 : 9 ratio. If there is 4 kg 368 g of metal A in a certain quantity of the alloy, what is the weight of the alloy?

20. Find $x : y : z$, given that $x : y = 5 : 11$ and $y : z = 5 : 7$.

21. In a Maths test A's and B's marks are in the ratio 6 : 5 while B's and C's marks are in the ratio 3 : 4. If the sum of marks scored by A, B, and C is 265, find how many marks were scored by each.

22. Divide Rs 1100 between A, B, and C such that A's share is $\frac{3}{5}$ of B's share and C's share is $1\frac{1}{3}$ of B's share.

23. In a map drawn to a 1 : 35,00,000 scale, if the distance between two small islands is 4.2 cm, what is the actual distance between the islands?

24. Mr Venugopal weighs 65 kg while Mrs Venugopal weighs 60 kg. If their heights are in proportion to their weights and Mr Venugopal is 178.75 cm tall, what is Mrs Venugopal's height?

25. Find the value of x if $0.7 : x$ and $3.5 : 1.05$ are in direct proportion.

26. Find the value of y if $y : 8.4$ and $36.6 : 3.05$ are in inverse proportion.

27. During a draught a housewife has just about enough food to feed the 8 family members for 14 days. If 4 needy relatives join the family, how long will the food last?

28. The Asansol Express averaged 60 km/h in travelling to Bardhaman in $1\frac{1}{2}$ hours. If it needs to cover the remaining 125 km to Asansol in another $1\frac{1}{2}$ hours, what km should be its average speed for the rest of the jouney?

29. A 5 m long car goes past a tree in half a second. At what speed was the car travelling?

30. A 5 m long car crosses a 30 m long bridge in 2 seconds. What was the speed of the car as it crossed the bridge?

31. If Mohan takes a bus from his home to the station, he will travel at 14.4 km/h to reach 10 minutes late for the train. If he takes a taxi, he will travel at 25.2 km/h to reach 15 minutes early for the train. How far is the station from Mohan's home?

32. The distance between stations A and B is 508.75 km. If a train starts off from A for B at 85 km/h at 8 a.m. and another train starts off from B for A at 100 km/h at the same time, when and where will the two engine drivers cross each other?

33. If the wind is blowing at 9 km/h and a bird can fly at 42 km/h, how long will it take the bird to cover the distance between two treetops 892.5 m apart, if it flies in the same direction as the wind?

34. In a fire academy 3 firemen take 14 minutes to put out a fire. How much faster could the fire have been put out if 2 more firemen joined in to help?

35. If a fisherman takes 8 days to weave a big fishing net, what fraction of the net will remain to be woven after 6 days of work?

36. Ram Kishore can build a hut in 5 days while his son can do the same job in 6 days. Father and son are commissioned by a landlord to build 2 huts for Rs 2915. How many days will the two take to build the huts and how will they share the money?

37. Budhwa can clean a sack of rice in 30 minutes while Manglu takes 45 minutes to do the same job. Both begin the job together but after 3 minutes Manglu runs away on some other errand leaving Budhwa to continue with the job. If Manglu returns to the job 5 minutes later, how many more minutes will the two take to finish the job?

38. If hose A is used, it takes 75 minutes to water a lawn, but if the thicker hose B is used, it takes only 50 minutes to do the same job. How long will it take to water the lawns using both hoses?

39. Inlet pipe A can fill a tank in 18 minutes while inlet pipe B takes 12 minutes to fill it up. The outlet pipe C can empty the full tank in 36 minutes. How long will it take to fill up the empty tank if pipes A, B, and C are opened simultaneously?

40. A swimming pool can be drained in 1 hour but filling it up takes 3 hours. If the swimming pool is full when all its inlet pipes and drains are opened simultaneously, how long will it take for the pool to be empty?