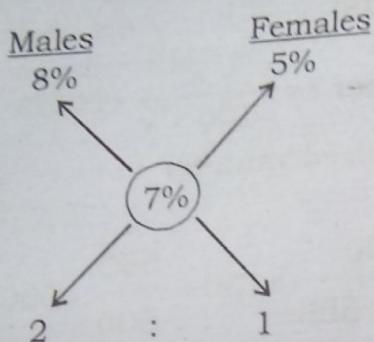


47.3; 19% Income Tax = 1% Income

$$\frac{\text{Income Tax}}{\text{Income}} = \frac{1}{19} = 5\%$$

48.3; **Paramount Concept:-**  
% increase in population

$$= \frac{10272 - 9600}{9600} \times 100 = \frac{672}{96} = 7\%$$



$$\text{No. of males} = \frac{2}{3} \times 9600 = 6400$$

49.4 **Short Trick:**

$$\frac{5}{3} - \frac{3}{5} = \frac{16}{15} \Rightarrow \% \text{ error}$$

$$= \frac{\text{error}}{\text{original}} \times 100$$

$$= \frac{16/15}{5/3} \times 100 \Rightarrow \frac{16 \times 3}{15 \times 3} \times 100 = 64\%$$

**2nd Method:-**

Let number be N.

$$\% \text{ error} = \frac{\frac{5}{3}N - \frac{3}{5}N}{\frac{5}{3}N} \times 100$$

$$= \frac{16N \times 3}{15 \times 5} \times 100 = 64\%$$

50.2; 40% of students = 972 (i.e. girls)

$$\therefore 60\% \text{ of students} = \frac{60 \times 972}{40} = 1458$$

**OR**

$$40\% = 972$$

$$\therefore 60\% = \frac{60 \times 972}{40} = 1458$$

# PROFIT AND LOSS

1. The ratio of cost price and selling of an article is  $8 : 9$ . The profit percent is  
 (1) 20    (2) 15  
 (3) 12.5                                        (4) 10  
 (5) None of these
2. A shopkeeper sells a commodity at ₹ 1470 and earns  $16\frac{2}{3}\%$  profit. Find the cost price of that commodity?  
 (1) ₹ 1260                                      (2) ₹ 1165  
 (3) ₹ 1254                                      (4) ₹ 1261  
 (5) None of these
3. When an object is sold at ₹ 770, the loss is  $12\frac{1}{2}\%$ . Find the cost price of the object?  
 (1) ₹ 889                                        (2) ₹ 850  
 (3) ₹ 880                                        (4) ₹ 900  
 (5) None of these
4. Mohan purchased an article and sold it for ₹ 2817.50 and earned 15 percent profit on the cost price. What was the cost price of the article?  
 (1) ₹ 2,500                                      (2) ₹ 2,450  
 (3) ₹ 2,550                                      (4) ₹ 3,315  
 (5) None of these
5. The owner of a cell phone shop charges his customer 23% more than the cost price. If a customer paid ₹ 7,011 for a cell phone, then what was the cost price of the cell phone?  
 (1) ₹ 5,845                                      (2) ₹ 6,750  
 (3) ₹ 5,900                                      (4) ₹ 6,925  
 (5) None of these
6. By what percent the consumption of tea be decreased so that the expenditure does not increase if the price of tea increases by 20%?  
 (1)  $16\frac{1}{2}\%$                                         (2)  $16\frac{2}{3}\%$   
 (3) 16.5%                                        (4) 17%  
 (5) None of these
7. A shopkeeper earns 20% profit on selling price. What is his profit percent on cost price?  
 (1) 21%    (2) 25%  
 (3) 23%    (4) 30%  
 (5) None of these
8. The price of tea increases by 20% and hence the expenditure of a family increases by 10%. Find out by what percent the consumption has been decreased?  
 (1)  $8\frac{1}{3}\%$     (2)  $8\frac{2}{3}\%$   
 (3) 8.5%    (4) 9%  
 (5) None of these
9. A coconut merchant finds that the cost price of 2750 coconuts is the same as the selling price of 2500 coconuts. The loss organ percent is  
 (1) 5% loss                                        (2) 15% loss  
 (3) 20% gain                                      (4) 10% gain  
 (5) None of these
10. The loss percent incurred when an object is sold at ₹ 436 is equal to the profit percent which is gained if the object is sold at ₹ 464. Find the cost price of that object?  
 (1) 460    (2) 389  
 (3) 450    (4) 400  
 (5) None of these

11. A shopkeeper sells an article for ₹ 78 and earns double the profit that he would have earned had he sold it for ₹ 69. What is its cost price?  
 (1) 60   (2) 55  
 (3) 61   (4) 61.5  
 (5) None of these
12. By selling an object for ₹ 900 a man earns double the profit of what he would have lost had he sold it for ₹ 450. If he sells it at a profit of 20%, find his selling price.  
 (1) 620   (2) 618  
 (3) 550   (4) 600  
 (5) None of these
13. A DVD player was purchased for ₹ 4,860. At what price should it be sold so that 25% profit is earned?  
 (1) ₹ 6,225                                        (2) ₹ 6,275  
 (3) ₹ 6,075                                        (4) ₹ 6,025  
 (5) None of these
14. A man buys pencils at the rate of 6 for ₹ 5 and sells them at 5 for ₹ 6. His profit percent is  
 (1) 30    (2) 35  
 (3) 40    (4) 44  
 (5) None of these
15. By selling 144 hens Mahesh suffered a loss equal to the selling price of 6 hens. His loss percent is  
 (1) 4    (2) 3  
 (3) 9   (4)  $4\frac{1}{2}$   
 (5) None of these
16. Some toffees were bought at rate of 11 for ₹ 10 and same number at the rate of 9 for ₹ 10. If the whole lot was sold at one rupee per toffee, then gain or loss in the whole transaction was  
 (1) loss of 1%                                        (2) gain of 1%  
 (3) neither gain nor loss                          (4) gain of 1.5%  
 (5) None of these
17. A man buys lemons at the rate of 11 for ₹ 10 and sells them at 10 for ₹ 11. What is his profit or loss percent?  
 (1) 21% profit                                        (2) 22% loss  
 (3) 24% profit                                        (4) 18% loss  
 (5) None of these
18. A shopkeeper buys some lemons at the rate of 2 for ₹ 1 and same number of lemons at 1 for ₹ 2. He sells them at 3 for ₹ 3. what is his gain or loss percent in this?  
 (1) 20% loss                                        (2) 22% profit  
 (3) 14% loss                                        (4) 19% profit  
 (5) None of these
19. A person buys 100 cups at ₹ 10 each. On the way 10 cups break. He sells the remaining cups at ₹ 11 each. His loss percent is  
 (1)  $\frac{1}{2}$    (2) 1  
 (3)  $1\frac{1}{2}$     (4) 2  
 (5) None of these
20. A man buys 12 articles for ₹ 12 and sells them at the rate of ₹ 1.25 per article. His gain percentage is  
 (1) 20    (2) 25  
 (3) 15    (4) 18  
 (5) None of these
21. By selling 33 m. cloth, a shopkeeper earns profit equivalent to selling price of 11 m. Find his profit percentage?  
 (1) 50%    (2) 80%  
 (3) 49%    (4) 32%  
 (5) None of these
22. By selling 33 m. cloth, a shopkeeper loses money equivalent to selling price of 11 m. Find his loss percentage?  
 (1) 25%    (2) 11%  
 (3) 35%    (4) 20%  
 (5) None of these
23. By selling 33 m. of cloth, a shopkeeper earns profit equivalent to the cost price of 11 m. Find his profit percentage?  
 (1)  $33\frac{1}{3}\%$     (2)  $30\frac{1}{3}\%$   
 (3) 38%    (4) 29%  
 (5) None of these

24. By selling 33 m. of cloth, a shopkeeper incurs loss equivalent to the cost price of 11 m. Find his loss percent?

- (1)  $33\frac{1}{3}\%$  (2) 29%  
(3) 34% (4) 21%

25. The cost price of 15 articles is same as the selling price of 10 articles. The profit percent is

- (1) 30% (2) 40%  
(3) 50% (4) 45%  
(5) None of these

26. The cost price of 10 articles is equal to the selling price of 9 articles. Find the profit percent.

- (1)  $9\frac{1}{11}\%$  (2)  $10\frac{1}{11}\%$   
(3)  $11\frac{1}{9}\%$  (4)  $12\frac{1}{9}\%$

(5) None of these

27. Selling price of 9 objects is equal to the cost price of 12 objects. Find the profit or loss percentage?

- (1)  $33\frac{1}{3}\%$  profit (2)  $35\frac{1}{3}\%$  loss  
(3) 32% profit (4) 29% loss  
(5) None of these

28. The selling price of 12 objects is equal to the cost price of 9 objects. Find the loss or profit percentage?

- (1) 28% profit (2) 25% loss  
(3) 23% profit (4) 31% loss  
(5) None of these

29. If a man estimates his loss as 20% of the selling price, then his loss percent is

- (1) 20% (2) 25%  
(3)  $13\frac{1}{3}\%$  (4)  $\frac{50}{3}\%$

(5) None of these

30. A merchant finds his profit as 20% of the selling price. His actual profit is

- (1) 20% (2) 22%  
(3) 25% (4) 30%  
(5) None of these

31. By selling an article for ₹ 240 a man incurs a loss of 10%. At what price should he sell it so that he makes a profit of 20%?

- (1) ₹ 264 (2) ₹ 288  
(3) ₹ 300 (4) ₹ 320  
(5) None of these

32. By selling a horse for ₹ 570, a tradesman would lose 5%. At what price must he sell it to gain 5%?

- (1) ₹ 530 (3) ₹ 580  
(3) ₹ 620 (4) ₹ 630  
(5) None of these

33. A house and a shop were sold for ₹ 1 lakh each. In this transaction, the house sale resulted into 20% loss whereas the shop sale resulted into 20% profit. The entire transaction resulted in

- (1) No loss no gain  
(2) Gain of ₹  $1/24$  lakh  
(3) Loss of ₹  $1/12$  lakh  
(4) Loss of ₹  $1/18$  lakh  
(5) None of these

34. If an article is sold for ₹ 178 at a loss of 11%, what should its selling price be in order to earn a profit of 11%?

- (1) ₹ 222.50 (2) ₹ 267  
(3) ₹ 222 (4) ₹ 220  
(5) None of these

35. A dealer sold two T.V. sets for ₹ 7400 each. On one he gained 10% and on the other he lost 10%. The dealer's loss or gain in the transaction is

- (1) No profit, no loss (2) 1% gain  
(3) 0.1% loss (4) 1% loss  
(5) None of these

36. By selling a table for ₹ 350 instead of ₹ 400, loss percent increases by 5%. The cost price of the table is

- (1) ₹ 1050 (2) ₹ 417.50  
(3) ₹ 435 (4) ₹ 1000  
(5) None of these

37. By selling a plot of land for ₹ 45,000 a person loses, 10%. At what price should he sell it to gain 15%?  
 (1) ₹ 50,000                          (2) ₹ 55,000  
 (3) ₹ 57,500                           (4) ₹ 60,000  
 (5) None of these
38. A dishonest milkman sells milk at cost price but he mixes water and earns  $16\frac{2}{3}\%$  profit. Find the ratio of mixture and milk in the mixture?  
 (1) 7 : 5                                (2) 7 : 6  
 (3) 6 : 6                                (4) 7 : 7  
 (5) None of these
39. A dishonest shopkeeper sells goods at cost price but uses 900 gms in place of 1 kg weight. What is his actual profit percent?  
 (1)  $11\frac{1}{9}\%$                               (2)  $11\frac{1}{8}\%$   
 (3) 11%                                    (4) 9%  
 (5) None of these
40. A dishonest sweet seller sells sweets at 10% profit but uses 800 gms instead of 1 kg. Find his profit percent?  
 (1)  $54\frac{2}{2}\%$                               (2)  $37\frac{1}{2}\%$   
 (3) 49%                                    (4) 50%  
 (5) None of these
41. A dishonest fruit seller sells fruits at 5% loss. If he uses 850 gm weight in place of 1 kg weight, then what is his profit percent?  
 (1)  $11\frac{13}{17}\%$                             (2)  $11\frac{12}{17}\%$   
 (3) 11.5%                                (4) 12%  
 (5) None of these
42. A dishonest shopkeeper sells his goods at cost price. If he uses a faulty scale, he earns 25% profit. Find out what weight does he use in place of 1 kg weight.  
 (1) 800                                    (2) 889  
 (3) 881                                    (4) 772  
 (5) None of these
43. A dishonest dealer professes to sell his goods at cost price, but he uses a weight of 950 gm for one kg weight. Find his gain percent.  
 (1) 5.20%                                (2)  $5\frac{5}{19}\%$   
 (3) 5.30%                                (4) 5.28%  
 (5) None of these
44. A tradesman marks his goods at such a price that after allowing a discount of  $12\frac{1}{2}\%$  for cash payment, he makes a profit of 20%. What is the marked price (in rupees) of the article which costs him ₹ 210?  
 (1) 285                                    (2) 288  
 (3) 385                                    (4) 388  
 (5) None of these
45. The price of sugar falls down by 20% and a housewife is able to buy 5 kg more for ₹ 100. Find the original cost price of sugar in ₹ per kg.?  
 (1) 8                                        (2) 9  
 (3) 6                                        (4) 5  
 (5) None of these
46. The price of tea increases by 32% and so a housewife's expenditure on tea increases by 10%. If she bought 10 kgs earlier, what is the quantity bought now?  
 (1)  $8\frac{1}{3}$                                       (2)  $8\frac{1}{2}$   
 (3) 8                                        (4) 7.9  
 (5) None of these
47. A shopkeeper sells an article for 10% profit. If he buys it for 4% less and sells it for  $18\frac{3}{4}\%$  profit then he gets ₹ 10 more. What is the original cost price?  
 (1) ₹ 250                                (2) ₹ 200  
 (3) ₹ 255                                (4) ₹ 201  
 (5) None of these

48. A shopkeeper sells an article at 20% profit. Had he bought it for 10% less and sold it for ₹ 12 less, he would have earned 30% profit. What is the actual cost price?
- (1) ₹ 400                                     (2) ₹ 500  
 (3) ₹ 450                                     (4) ₹ 600  
 (5) None of these
49. A shopkeeper sells an object for 25% profit. If he buys it for 25% less and sells it for ₹ 25 less then he earns 25% profit. What is the original cost price?
- (1) ₹ 80   (2) ₹ 79  
 (3) ₹ 40   (4) ₹ 70  
 (5) None of these
50. A person sells an article at a profit of 10%. If he had bought it at 10% less and sold it for ₹ 3 more, he would have gained 25%. Find the cost price.
- (1) ₹ 120   (2) ₹ 150  
 (3) ₹ 175   (4) ₹ 225  
 (5) None of these
51. A person sold a horse at a gain of 15%. Had he bought it for 25% less and sold it for ₹ 600 less, he would have made a profit of 32%. The cost price of the horse was
- (1) ₹ 3,750                                     (2) ₹ 3,250  
 (3) ₹ 2,750                                     (4) ₹ 2,250  
 (5) None of these
52. Vishal sold an article for Rs 1,740 and made 15 percent profit on the discounted price he bought. If the discount was 20 percent, what was the original price?
- (1) ₹ 1,900                                     (2) ₹ 1,600  
 (3) ₹ 2,400  
 (4) Can't be determined  
 (5) None of these
53. A shopkeeper sells a TV set on discount of 8% of printed price and gains 25%. If marked price was ₹ 20,000 then, what was the cost price?
- (1) ₹ 13800                                     (2) ₹ 14720  
 (3) ₹ 14800                                     (4) ₹ 13720  
 (5) None of these
54. Partha earns 15% on an investment but losses 10% on another investment. If the ratio of two investments is 3 : 5, then the combined loss percent is—
- (1)  $1\frac{1}{4}$    (2)  $\frac{4}{5}$   
 (3)  $1\frac{3}{5}$    (4)  $\frac{5}{8}$   
 (5) None of these
55. The total cost price of two watches is ₹ 840. One is sold at a profit of 16% and the other at a loss of 12%. There is no loss or gain in the whole transaction. The cost price of the watch on which the shopkeeper gains, is—
- (1) 360   (2) 370  
 (3) 380   (4) 390  
 (5) None of these
56. A sells a good to B at a profit of 20% and B sells it to C at a profit of 25%. If C pays ₹ 225 for it, what was the cost price for A?
- (1) ₹ 100   (2) ₹ 125  
 (3) ₹ 150   (4) ₹ 175  
 (5) None of these
57. A sold an article to B at the profit of 25%, B sold it to C at loss of 10% and C sold it to D at the profit of 20%. If D paid ₹ 27 then how much A paid to buy this article?
- (1) ₹ 20   (2) ₹ 15  
 (3) ₹ 12   (4) ₹ 9  
 (5) None of these
58. A sells a pen to B at a gain of 20% and B sells it to C at gain of 10% and C sells it to D at a gain of 12.5%. If D pays ₹ 14.85, what did it cost A?
- (1) ₹ 6   (2) ₹ 8  
 (3) ₹ 10   (4) ₹ 12  
 (5) None of these

59. A person bought two watches for ₹ 480. He sold one at a loss of 15% and the other at a profit of 19% and he found that each watch was sold at the same price. Find the cost price of the two watches.
- (1) Loss ₹ 280, ₹ 200  
(2) Loss ₹ 250, ₹ 280  
(3) Loss ₹ 380, ₹ 300  
(4) Loss ₹ 350, ₹ 450  
(5) None of these
60. The marked price of a radio is ₹ 480. The shopkeeper allows a discount of 10% and still gains 8%. If no discount is allowed, find his gain percent.
- (1) 10%                      (2) 15%  
(3) 20%                      (4) 35%  
(5) None of these
61. 5% more is gained by selling a cow for ₹ 1010 than by selling it for ₹ 1000. Find the cost price of the cow.
- (1) ₹ 200                      (2) ₹ 150  
(3) ₹ 125  
(4) Can't determined  
(5) None of these
62. A retail seller buys 30 pens at the marked price of 27 pens. What is his profit percent?
- (1)  $11\frac{2}{9}\%$                       (2)  $11\frac{1}{9}\%$   
(3) 11.5%                      (4) 20%  
(5) None of these
63. At the marked price of 36 pens a retail seller buys 40 pens. If he gives 1% discount, find his profit percent?
- (1) 10.2%                      (2) 10.5%  
(3) 11.5%                      (4) 10%  
(5) None of these
64. A piece of land came to a person through three middleman each gaining 20%. If the person purchased the land for ₹ 3,45,600 the original cost of the land was
- (1) ₹ 1,00,000                      (2) ₹ 1,50,000  
(3) ₹ 1,75,800                      (4) ₹ 2,00,000  
(5) None of these
65. Nikita bought 30 kg of wheat at the rate of ₹ 9.50 per kg and 40 kg of wheat at the rate of ₹ 8.50 per kg and mixed them. She sold the mixture at the rate of ₹ 9.90 per kg. Her total profit or loss in the transaction was
- (1) ₹ 2 loss                      (2) ₹ 2 profit  
(3) ₹ 7 loss                      (4) ₹ 7 profit  
(5) None of these
66. 9 kg of rice cost as much as 4 kg of sugar; 14 kg of sugar cost as much as 1.5 kg of tea; 2 kg of a tea cost as much as 5 kg of coffee; find the cost of 11 kg of coffee, if 2.5 kg of rice cost ₹ 12.50.
- (1) ₹ 465                      (2) ₹ 462  
(3) ₹ 365                      (4) ₹ 362  
(5) None of these

### Answer with explanations

1.3; Required percent profit =  $\frac{P}{C.P.} \times 100$   
 $= \frac{1x}{8x} \times 100 = \frac{100}{8} = 12.5$

2.1;

$$C.P. = \frac{100}{100 + P\%} \times S.P.$$

$$= \frac{100}{100 + 16\frac{2}{3}} \times 1470 = \frac{100}{100 + \frac{50}{3}} \times 1470$$

$$= \frac{100}{350} \times 1470 = \frac{100}{1} \times \frac{3}{350} \times 1470 = ₹1260/-$$

### Paramount Concept:-

$$16\frac{2}{3}\% =$$

$$\frac{50}{100} = \frac{1}{6}$$
 (See percentage - Ratio Chart)

$$\frac{1}{6} \rightarrow \text{Profit}$$

$$\frac{5}{6} \rightarrow \text{C.P.}$$

$$S.P. = P + C.P. = 7$$

$$\text{If } 7x = 1470$$

$$\text{then } 6x = ?$$

$$7x = 1470$$

$$x = \frac{1470}{7} = 210$$

$$6x = 6 \times 210 = ₹1260/-$$

3.3;

$$C.P. = \frac{100}{100 - L\%} \times S.P.$$

$$= \frac{100}{100 - 12\frac{1}{2}} \times 770 = \frac{100}{100 - \frac{25}{2}} \times 770$$

$$= \frac{100}{\frac{175}{2}} \times 770 = \frac{100 \times 2}{175} \times 770 = ₹880/-$$

**Paramount Concept:-**  $12\frac{1}{2}\% = \frac{25}{200} = \frac{1}{8}$   
 $\frac{1}{8} \rightarrow \text{Loss}$   
 $\frac{7}{8} \rightarrow \text{CP}$   
 $S.P. = C.P. - \text{Loss} = 8 - 1 = 7$   
If  $7x = 770$   
then  $x = 110$   
hence C.P. i.e.  $8x = 8 \times 110 = ₹880/-$

4.2;  $C.P. = \frac{100}{100 + P\%} \times S.P.$   
Cost price of the article =  
 $\frac{100 \times 2817.50}{115} = ₹2450/-$

**Paramount Concept:-**  
Let C.P. = ₹100/-  
15% profit = ₹15/-  
S.P. = C.P. + Profit = ₹115/-  
When S.P. = 115/- C.P. = ₹100/-  
" " = ₹2817.50/- C.P. =  
 $\frac{100 \times 2817.50}{115} = ₹2450/-$

5.5; Let the cost price of cell phone be ₹x

According to the question,

$$\frac{100 + 23}{100} \times x = 7011$$

$$\text{or, } x = \frac{7011 \times 100}{123} = 5700$$

### Paramount Concept:-

$$\text{If } S.P. = ₹123/- \quad [C.P. = 100]$$

$$P = 23\% \text{ of } 100 \text{ i.e.}$$

$$₹23/-]$$

$$\text{then } C.P. = ₹100$$

$$\text{If } S.P. = ₹7011 \text{ then}$$

$$C.P. = \frac{100 \times 7011}{123} = ₹5700/-$$

6.2; Let C.P. of tea = ₹100/-  
Consumption = 100 kg  
Total expenditure =  $100 \times 100$   
= ₹10000/-

$$\text{New C.P} = 100 + 20\% \text{ of } 100 \\ = ₹ 120/-$$

Consumption =  $x$

$$\text{Total exp.} = \text{same} = ₹ 10000/- \\ 120 \times x = 10000$$

$$x = \frac{10000}{120} = \frac{250}{3}$$

$$\% \text{ dec in consumption} = \frac{\text{decrease}}{\text{original}} \times 100 \\ = \frac{100 - \frac{250}{3}}{100} \times 100 \\ = \frac{50}{300} \times 100 \\ = \frac{1}{6} \times 100 = 16\frac{2}{3}\%$$

### Paramount Concept:-

$$20\% = \frac{1}{5}$$

Price  $\rightarrow 5 : 6$

Consumption  $\rightarrow 6 : 5$  (So that expenditure remains the same)

$$\text{Decrease in consumption} = 1 \text{ i.e. } \frac{1}{6} \\ = 16\frac{2}{3}\%$$

7.2; Let S.P. = 100

$$P\% = 20\% \text{ of } 100 = 20$$

$$C.P. = 100 - 20 = 80/-$$

$$P\% \text{ on C.P.} = \frac{P}{C.P.} \times 100 \\ = \frac{20}{80} \times 100 = 25\%$$

### Paramount Concept:-

$$20\% = \frac{1}{5} \rightarrow \text{Profit} \\ \frac{5}{5} \rightarrow \text{S.P.}$$

$$C.P. = S.P. - P = 4$$

$$P\% = \frac{1}{4} \times 100 = 25\%$$

$$8.1; \quad 20\% = \frac{1}{5}$$

$$\text{Price} = \frac{\text{old}}{5} : \frac{\text{New}}{6}$$

$$\frac{\text{Consumption}}{\text{expenditure}} = \frac{6}{30} : \frac{5}{30}$$

(When expenditure remains same)  
but new exp = 10% more  
i.e expenditure = 33

hence, new consumption =  $x$

$$6 \times x = 33$$

$$x = 5.5$$

$$\text{new exp.} = 5.5$$

$$\% \text{ Dec} = \frac{\text{Decrease in consumption}}{\text{Original consumption}} \times 100$$

$$= \frac{6 - 5.5}{6} \times 100 = 8\frac{1}{3}\%$$

### Paramount Concept:-

<b>Original</b>	<b>New</b>
-----------------	------------

Price = 100 per.kg.	Price = 120 per.kg.
Exp. = 100/-	Exp. = 110

$$\text{Cons.} = \frac{100}{100} = 1 \text{ unit} \quad \text{Cons.} = \frac{110}{120} = \frac{11}{12} \text{ units}$$

$$\% \text{ Dec} = \frac{\text{Decrease in consumption}}{\text{Original consumption}} \times 100$$

$$= \frac{1 - \frac{11}{12}}{1} \times 100 = \frac{11}{12} \times 100$$

$$= 8\frac{4}{12} = 8\frac{1}{3}\%$$

9.4; C.P. of 2750 coconuts = 100  
S.P. of 2500 coconuts = 100

$$\text{S.P. of 2750 coconuts} = \frac{2750 \times 100}{2500} \\ = 110$$

$$P\% = \frac{P}{C.P.} \times 100$$

$$P\% = \frac{10}{100} \times 100 = 10\%$$

### Other method

Suppose C.P. of 2750 coconuts = 2750  
 $\times 2500$

C.P. of one coconut = 2500

Again, S.P. of 2500 coconuts =  $2750 \times 2500$

S.P. of one coconut = 2750

Required percentage profit

$$= \frac{(2750 - 2500)}{2500} \times 100 = 10\%$$

10.3; Since, L% = P %

$$\frac{L}{C.P.} \times 100 = \frac{P}{C.P.} \times 100$$

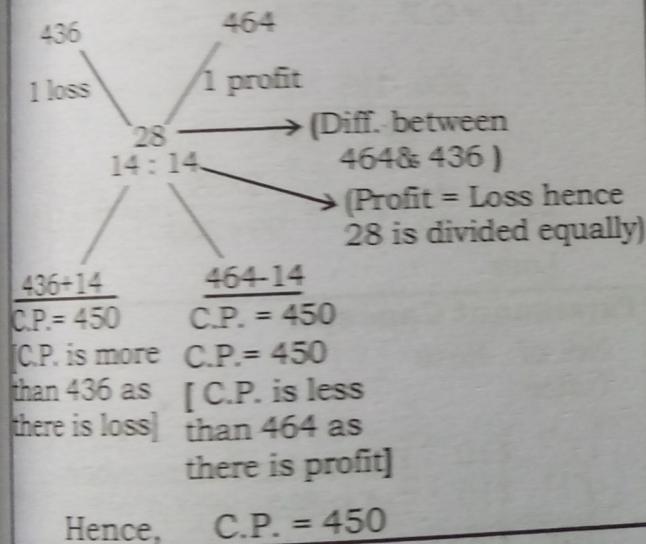
$$\frac{C.P. - S.P.}{C.P.} \times 100 = \frac{S.P. - C.P.}{C.P.} \times 100$$

$$\frac{x - 436}{x} \times 100 = \frac{464 - x}{x} \times 100$$

$$2x = 900$$

$$x = 450/-$$

### Paramount Concept:-



### 10.3; Other method:-

Here,  $464 - C.P. = C.P. - 436$

$$\therefore C.P. = \frac{(464 + 436)}{2} = ₹ 450$$

11.1; C.P. =  $x$

S.P.<sub>1</sub> = 69

P<sub>1</sub> =  $69 - x$

S.P.<sub>2</sub> = 78

P<sub>2</sub> =  $2(69 - x)$

$$\frac{P_1}{P_2} = \frac{S.P_1 - C.P.}{S.P_2 - C.P.}$$

$$\frac{69 - x}{2(69 - x)} = \frac{69 - x}{78 - x}$$

$$2(69 - x) = 78 - x$$

$$138 - 2x = 78 - x$$

$$x = 60$$

### 11.1; Other method:-

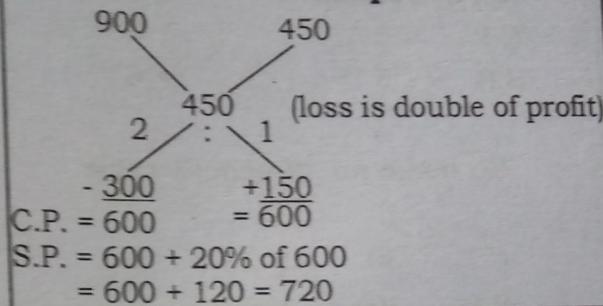
Here  $2 \times (69 - C.P.) = 78 - C.P.$

or,  $138 - 2 C.P. = 78 - C.P.$

or,  $C.P. = 138 - 78 = 60$

$\therefore C.P. = ₹ 60$

### 12.5; Paramount Concept:-



### Other method

$$P = 2L$$

$$S.P. - C.P. = 2(C.P. - S.P. 2)$$

$$900 - C.P. = 2(C.P. - 450)$$

$$900 + 900 = 3CP$$

$$C.P. = 600$$

$$P\% = 20\%$$

$$S.P. = \frac{100 + P\%}{100} \times C.P.$$

$$= \frac{120}{100} \times 600 = ₹ 720/-$$

### 13.3; Selling Price

$$\frac{100 + P\%}{100} \times C.P. = \left( \frac{100 + 25}{100} \right) \times 4860$$

$$= \frac{125}{100} \times 4860 = ₹ 6075/-$$

**Note :-** For calculating profit/loss on any object, number of articles/objects must be the same.

⇒ In these questions we have to make number of articles same and calculate profit/loss on it.

Refer to questions. 14, 16, 17, 18

14.4; Let the person buy 30 pencils. (as L.C.M. of 6 & 5 is 30)

C.P. of 6 pencils = ₹ 5

$$\text{C.P. of 30 pencils} = \frac{5}{6} \times 30 = ₹ 25$$

S.P. of 6 pencils = ₹ 6

$$\text{S.P. of 30 pencils} = \frac{6}{5} \times 30 = ₹ 36$$

$$\therefore \text{Gain} = ₹ (36 - 25) = ₹ 11$$

$$\text{Gain percent} = \frac{11}{25} \times 100 = 44\%$$

#### Paramount Concept:-

No. of Pencils	Rate
C.P. $6 \times 5$	₹ $5 \times 5$
S.P. $5 \times 6$	₹ $6 \times 6$
↓	

To make no. of pencils same

↓

$$\begin{array}{ll} \text{C.P.} & 30 \quad ₹ 25 \\ \text{S.P.} & 30 \quad ₹ 36 \end{array}$$

11 (profit)

$$\text{profit \%} = \frac{11}{25} \times 100 = 44\%$$

#### Note :-

- (1) When the loss / profit is calculated on money then it is done on C.P.
- (2) When the loss / profit is calculated on articles then it is done on actual sale.

Profit %

$$= \frac{\text{buy(object)} - \text{Sell(object)}}{\text{Actual Sale}} \times 100$$

**Refer to Questions:- 15, 21, 22, 23, 24, 25, 26, 27, 28**

15.1; Let S.P. of 144 hens = ₹ 144/-

∴ S.P. of 1 hen = ₹ 1/-

L = ₹ 6/-

$$\text{C.P.} = \text{S.P.} + \text{L} = 144 + 6 = ₹ 150/-$$

$$\text{L\%} = \frac{L}{CP} \times 100 = \frac{6}{150} \times 100 = 4\%$$

#### Paramount Concept:-

$$\text{Loss} = \text{C.P.} - \text{S.P.}$$

S.P. of 6 hens = C.P. of 144 hens - S.P. of 144 hens

$$\Rightarrow \text{C.P. of 144} = \text{S.P. of 6 hens} + \text{S.P. of 144 hens}$$

$$\% \text{L} = \frac{6}{150} \times 100 = 4$$

16.

$$\text{C.P. of 11 toffees} = ₹ 10/-$$

$$\text{C.P. of 1 toffee} = ₹ \frac{10}{11}$$

$$\text{C.P. of 9 toffees} = ₹ 10/-$$

$$\text{C.P. of 1 toffee} = ₹ \frac{10}{9}$$

$$\text{C.P. of 2 toffee} = ₹ \frac{10}{11} + \frac{10}{9} = \frac{90+110}{99}$$

$$\text{S.P. of 1 toffee} = ₹ 1/-$$

$$\text{S.P. of 2 toffees} = ₹ 2/-$$

$$L = \text{C.P.} - \text{S.P.} = \frac{200}{99} - 2$$

$$= \frac{200-198}{99} = \frac{2}{99}$$

$$L\% = \frac{L}{\text{C.P.}} \times 100 = \frac{2 \times 99}{99 \times 200} \times 100 = 1\%$$

Loss

#### Paramount Concept:-

No. of	Rate
--------	------

Toffee

$\left[ \begin{array}{ll} 11^{\times 9} & ₹ 10^{\times 9} \\ 9^{\times 11} & ₹ 10^{\times 11} \end{array} \right]$  to make the number of toffees equal

$\left[ \begin{array}{ll} 198 & ₹ 200 \end{array} \right]$

S.P. ₹ 198 [as 198 toffees are sold for ₹ 1 per toffee]

C.P. → 198 ₹ 200

S.P. → 198 ₹ 198

[2 loss]

$$\text{loss\%} = \frac{2}{200} \times 100 = 1\%$$

17.1; C.P. of 11 = ₹ 10/-

$$\text{S.P. of } 10 = \frac{100}{11} /-$$

S.P. of 10 = 11/-

$$P\% = 100 = 11 - \frac{100}{11} \times 100$$

$$\frac{100}{11}$$

$$= \frac{121 - 100}{11} \times \frac{11}{100} \times 100 = 21\%$$

#### Paramount Concept:-

No. of Toffee Rate

$$C.P. \rightarrow \begin{bmatrix} 11^{x10} & ₹10^{x10} \end{bmatrix}$$

S.P. →  $\begin{bmatrix} 10^{x11} & ₹11^{x11} \end{bmatrix}$  11 is multiplied by 10 and 10 is multiplied by 11 to make the no. of toffees equal.

$$C.P. \rightarrow 110 \rightarrow 100$$

$$S.P. \rightarrow 110 \rightarrow 121$$

[21 profit]

$$\text{Profit \%} = \frac{21}{100} \times 100 = 21\%$$

18.1; No. of lemons Rate

$$C.P. \rightarrow \begin{bmatrix} 2 & ₹1 \\ 1^{x2} & ₹2^{x2} \end{bmatrix}$$

$$C.P. \rightarrow \begin{bmatrix} 3^{x4} & ₹5^{x3} \end{bmatrix}$$

$$S.P. \rightarrow \begin{bmatrix} 4^{x3} & ₹3^{x4} \end{bmatrix}$$

$$\begin{array}{rcl} \downarrow & & \\ C.P. & 12 & ₹15 \\ S.P. & 12 & ₹12 \end{array} \quad (3 \text{ loss})$$

$$\Rightarrow \text{Loss \%} = \frac{l}{C.P.} \times 100 = \frac{3}{15} \times 100 = 20\%$$

#### Paramount Concept:-

2 Lemons = 1/- (C.P. of 1st type)

1 Lemon = 2/- (C.P. of 2nd type)

i.e. 2 lemons = 4/-

C.P. of 4 lemons = 5/- (When mixed)

S.P. of 3 lemons = 3/-

$$\text{S.P. of 4 lemons} = \frac{3}{3} \times 4 = \frac{12}{3} = 4/-$$

$$\begin{aligned} \text{Loss \%} &= \frac{L}{C.P.} \times 100 = \frac{5 - 4}{5} \times 100 \\ &= \frac{1}{5} \times 100 = 20\% \end{aligned}$$

19.2; C.P. of 100 cups = ₹  $100 \times 10$

$$= ₹ 1000$$

10 cups are broken.

$$\therefore \text{S.P. of 90 cups} = ₹ (90 \times 11)$$

$$= ₹ 990$$

$$\text{Loss} = ₹ (1000 - 990) = ₹ 10$$

$$\therefore \text{Loss percent} = \frac{10}{1000} \times 100 = 1\%$$

20.2; C.P. = 12

$$S.P. = 1.25 \times 12 = 15$$

$$\text{Total profit} = 15 - 12 = ₹ 3$$

$$\% \text{gain} = \frac{3}{12} \times 100 = 25\%$$

21.1; Here the problem will be simplified if we proceed as follows.

Let S.P. of 33m = ₹ 3/-

S.P. of 11 m = 1/-

Hence, P = 1/-

$$C.P. = S.P. - P = 3 - 1 = ₹ 2/-$$

$$P\% = \frac{P}{C.P.} \times 100$$

$$= \frac{1}{2} \times 100 = 50\%$$

#### Paramount Concept:-

Profit = S.P. - C.P.

S.P. (11m cloth) = S.P. (33m cloth) - C.P. (33m cloth)

$\Rightarrow$  C.P. of 33m cloth = S.P. of 22 m cloth.

$$\text{Profit \%} = \frac{33 - 22}{22} \times 100 = 50\%$$

22.1; Let S.P. of 33 m = 3/-

hence, S.P. of 11 m = 1/-

L = 1/-

$$C.P. = S.P. + L = 3 + 1 = 4/-$$

$$L\% = \frac{L}{C.P.} \times 100 = \frac{1}{4} \times 100 = 25\%$$

#### Paramount Concept:-

Loss = C.P. - S.P.

S.P. of 11 = C.P. of 33m - S.P. of 33m

$\Rightarrow$  C.P. of 33 = S.P. of 44m

$$\text{Loss \%} = \frac{44 - 33}{44} \times 100 = 25\%$$