4 CHAPTER

PROFIT & LOSS

1. A man sells his two cars at the same price. In one car he makes a profit of 10%. In other car he loses 10% over the cost price. His total gain or loss percent is
   - (a) 1% loss
   - (b) 1% gain
   - (c) 2% loss
   - (d) No loss no gain

2. A man buys an article for Rs. 490 and sells it for Rs. 465.50. Find his loss percentage.
   - (a) 4%
   - (b) 4.5%
   - (c) 5%
   - (d) 5.5%

3. A dealer professing to sell his goods at cost price, uses 900 gm weight for 1 Kg. His gain percent is
   - (a) 9%
   - (b) 10%
   - (c) 11%
   - (d) $11\frac{1}{9}\%$

4. The setting price of a table is $\frac{4}{3}$ times its cost price. The gam percent is
   - (a) $20\frac{1}{3}\%$
   - (b) $20\frac{1}{2}\%$
   - (c) $25\frac{1}{4}\%$
   - (d) $33\frac{1}{3}\%$

5. X, Y, Z started a business by investing Rs. 27000, Rs. 81000 and Rs. 72000 respectively. At the end on one year. Y's share of total profit was Rs. 36000.

   What was the total profit ?
   - (a) Rs.108000
   - (b) Rs. 116000
   - (c) Rs. 80000
   - (d) Rs. 92000

6. Successive discounts of 20% and 10% are equivalent to a single discount of
   - (a) 25%
   - (b) 26%
   - (c) 28%
   - (d) 30%

7. If CP of 10 articles is equal to SP of 8 articles, then in the whole transaction there is a

   - (a) Profit of 20%
   - (b) Loss of 20%
   - (c) Loss of 25%
   - (d) Profit of 25%

8. To gain 25% after allowing a discount of 10%, the shopkeeper should mark the price of the article which cost him ₹360 as
   - (a) ₹450
   - (b) ₹460
   - (c) ₹486
   - (d) ₹500

9. A shopkeeper mixes 26 kg of tea which costs him ₹800 per kg with 30 kg of tea which costs him ₹1440 per kg. He sells the mixed tea at ₹1200 per kg. His gain is
   - (a) 5%
   - (b) 8%
   - (c) 9%
   - (d) 10%

10. Successive discounts of 30% and 10% are equivalent to a single discount of
    - (a) 20%
    - (b) 35%
    - (c) 36%
    - (d) 37%

11. If C.P. of 12 articles is equal to S.P. of 10 articles, then in the whole transaction there is a profit of
    - (a) $\frac{50}{3}\%$
    - (b) $\frac{25}{3}\%$
    - (c) 25%
    - (d) 20%

12. To gain 25% after allowing a discount of 20%, the shopkeeper should mark the price of the article which cost him ₹400 as
    - (a) ₹525
    - (b) ₹580
    - (c) ₹625
    - (d) ₹650

13. A shopkeeper mixes 40 kg of sugar which costs him ₹36 per kg with 27 kg of sugar which costs him ₹30 per kg. He sells the mixture at ₹35 per kg. His gain percent is
    - (a) $\frac{38}{9}\%$
    - (b) $\frac{400}{49}\%$
    - (c) $\frac{100}{9}\%$
    - (d) 10%

14. Successive discounts of 40% and 20% are equivalent to a single discount of

(a) 60% (b) 55%

(c) 54% (d) 52%

15. If CP of 25 articles is equal to SP of 20 articles, then in the whole transaction there is a profit of

(a) 10% (b) 20%

(c) 25% (d) 30%

16. To gain 25% after allowing a discount of 10%, the shopkeeper should mark the price of the article which cost him ₹720 as

(a) 10% (b) 20%

(c) 25% (d) 30%

17. A shopkeeper mixes 26 kg of rice which costs him ₹100 per kg with 30 k, of rice which costs him ₹180 per kg. He sells the mixed rice at ₹150 per he percentage gain is

(a) 10% (b) $\dfrac{100}{21}\%$

(c) 7% (d) 5 %

18. Successive discounts of 20% and 5% are equivalent to a single discount of

(a) 25% (b) 22%

(c) 21% (d) 24%

19. If CP of 7 articles is equal to SP of 5 articles, then in the whole transaction there is a profit of

(a) 40% (b) 30%

(c) 25% (d) $\dfrac{200}{7}\%$

20. To gain 20% after allowing a discount of 5%, the shopkeeper should mark the price of the article which cost him ₹475 as

(a) ₹4500

(b) ₹550

(c) ₹600

(d) ₹650

21. A shopkeeper mixes 35 kg of wheat which cost him ₹15 per kg with 25 kg of wheat which costs him ₹20 per kg. He sells the mixture at ₹22 per kg. His gain is

(a) $\dfrac{1180}{41}\%$ (b) $\dfrac{1475}{66}\%$

(c) $\dfrac{1080}{41}\%$ (d) $\dfrac{1325}{41}\%$

22. Successive discounts of 30% and 20% are equivalent to a single discount of

(a) 40% (b) 44%

(c) 45% (d) 50%

23. If C.P. of 15 articles is equal to S.P. of 12 articles, then in the whole transaction there is a

(a) Loss of 25% (b) Loss of 20%

(c) Profit of 25% (d) Profit of 20%

24. To gain 20% after allowing a discount of 5%. the shopkeeper should mark the price of the article which cost him ₹950 as

(a) ₹1000 (b) ₹1100

(c) ₹1200 (d) ₹1300

25. A shopkeeper mixes 60 kg of sugar which costs him ₹20 per kg with 40 kg of sugar which costs him ₹25 per kg. He sells the mixture at ₹26 per kg. His gain percent is

(a) $\dfrac{200}{11}\%$ (b) $\dfrac{300}{11}\%$

(c) $\dfrac{200}{13}\%$ (d) $\dfrac{300}{13}\%$

26. If 20% of a number is 250, then number is

(a) 25 (b) 1250

(c) 2500 (d) 5000

27. The cost price of an article is ₹220. If profit is 10%, then selling price of article is

(a) ₹242 (b) ₹252

(c) ₹200 (d) ₹363

28. If selling price of an article is ₹330 and profit is 10%, then cost price of article is

(a) ₹290 (b) ₹297

(c) ₹300 (d) ₹363

29. A shopkeeper mixes 10 kg of wheat which cost him ₹20/kg with 5 kg of wheat which cost him ₹15/kg. He sells the mixture at ₹21/kg. His profit is

(a) ₹40 (b) ₹45

(c) ₹50 (d) ₹55

30. The C.P of an article is ₹210. If loss is 10%, then SP of article is

(a) ₹240 (b) ₹220

(c) ₹231 (d) ₹189

31. The selling price of an article ₹900. If it is sold at a loss of 10%, then cost price is

(a) ₹990 (b) ₹1000

(c) ₹810 (d) ₹910

32. A shopkeeper mixes 20 kg of wheat which cost him ₹16/kg with 10 kg of wheat which cost him ₹12/kg. He sells the mixture at ₹18/kg. His profit is

(a) ₹100 (b) ₹110

(c) ₹115 (d) ₹120

33. If 15% of a number is 9, then number is

(a) 30 (b) 45

(c) 60 (d) 75

34. The cost price of an article is ₹260. If it is sold at profit of 10%, then selling price is

(a) ₹234 (b) ₹286

(c) ₹334 (d) ₹386

35. The selling price of an article is ₹648. If it was sold at a profit of 8%, the cost price of the article was

(a) ₹500 (b) ₹550

(c) ₹600 (d) ₹630

36. A shopkeeper mixes 30 kg of what which cost him ₹16/kg with 20 kg of wheat which cost him ₹18/kg. He sells the nixture at ₹20/kg. His gain is

(a) ₹260 (b) ₹220

(c) ₹180 (d) ₹160

37. If 8% of a number is 24, then number is

(a) 200 (b) 300

(c) 350 (d) 400

38. The cost price of an article is ₹550. If it is sold at profit of 10%, then selling price of article is

(a) ₹495 (b) ₹610

(c) ₹625 (d) ₹.605

39. The selling price of an article is ₹608, if it was sold at a loss of 5%, the cost price of the article was

(a) ₹620 (b) ₹640

(c) ₹650 (d) ₹680

40. A shopkeeper mixes 20 kg of wheat which cost him ₹16/kg with 10 kg of wheat which cost him ₹12/kg. He sells the mixture at ₹17/kg. His gain is

(a) ₹50 (b) ₹60

(c) ₹70 (d) ₹80

41. A shopkeeper sells an article for Rs 96 and earns double the profit than he would have earned had he sold it for Rs 88. If he sells the article at Rs 110, his percent profit is

(a) 20 (b) 25

(c) 37.5 (d) 34.1

42. The marked price of a TV is Rs 32500. After allowing a discount of 20% to a customer, a shopkeeper still makes a profit of 30%. If he sells the TV at the marked price, his profit percent is

(a) 50 (b) 56.8

(c) 62.5 (d) 70

43. A trader marks his goods 20% above the cost price but allows the customer a discount of 5% on it. If he further gives 5% discount for cash payment, then his profit percent in this case is

(a) 10 (b) 9.2

(c) 8.3 (d) 8.1

44. A person buys goods for Rs. 96000. He sells $\frac{2}{5}$ of it at a loss of 6%. At what gain percent should he sell the remaining part to gain 10% on the whole?

(a) $20\frac{2}{3}$

(b) $19\frac{1}{3}$

(c) 15

(d) 16

45. The marked price of a bed is Rs. 9575. A shopkeeper allows a discount of 12% on its marked price and still gains 10%. The difference (in Rs.) of the marked price and cost price of the bed is

(a) 1915   (b) 1820

(c) 1718   (d) 866

46. Anu bought two articles for Rs. 2150 each. She sold one at a loss of 8%. If she had a gain of Rs.1230 on the whole transaction, the selling price of second article is Rs.x more than the selling price of the first one. The value of x is

(a) 1478   (b) 1574

(c) 2150   (d) 1978

47. A person purchases 8 pens for Rs. 10 and sells 10 pens for Rs. 8. How much profit or loss does he make

(a) 30% gain   (b) 30% loss

(c) 36% gain   (d) 36% loss

48. A sells a bicycle to B at a profit of 20% and B sells it to C at a profit of 25%. If C pays Rs. 1500. what did A pay for it

(a) Rs. 825   (b) Rs. 1000

(c) Rs. 1100   (d) Rs. 1125

49. A merchant has 1000 kg of rice, part of which he sells at 8% profit and the rest at 16% profit. He gains 14% on the whole. The quantity sold at 16% profit is

(a) 500 kg   (b) 650 kg

(c) 750 kg   (d) 800 kg

ANSWERS

1. (a)	**2.** (c)	**3.** (d)	**4.** (d)	**5.** (c)	**6.** (c)	**7.** (d)	**8.** (d)	**9.** (a)	**10.** (d)
11. (d)	**12.** (c)	**13.** (a)	**14.** (d)	**15.** (c)	**16.** (*)	**17.** (d)	**18.** (d)	**19.** (a)	**20.** (c)
21. (a)	**22.** (b)	**23.** (c)	**24.** (c)	**25.** (a)	**26.** (b)	**27.** (a)	**28.** (c)	**29.** (a)	**30.** (d)
31. (b)	**32.** (a)	**33.** (c)	**34.** (b)	**35.** (c)	**36.** (d)	**37.** (b)	**38.** (d)	**39.** (b)	**40.** (c)
41. (c)	**42.** (c)	**43.** (c)	**44.** (a)	**45.** (a)	**46.** (b)	**47.** (d)	**48.** (b)	**49.** (c)	

EXPLANATIONS

1. If the selling price and profit +/ loss percent is same then there is always a loss of $\left(\dfrac{10 \times 10}{100}\right)\%$ i.e. 1%.

2. Loss % = $\dfrac{490 - 465.5}{490} \times 100 = 5\%$

3. Required percent = $\dfrac{100}{900} \times 100 = 11\dfrac{1}{9}\%$

4. SP = $\dfrac{4}{3} \times$ CP

$\Rightarrow$ Required profit = $\dfrac{4-3}{3} \times 100 = 33\dfrac{1}{3}\%$

5. Y's share = Rs. 36000 which is = $\dfrac{4}{9} \times 81000$

Hence, total profit

= $\dfrac{4}{9}(27000 + 81000 + 72000)$

= Rs. 80,000

6. Successive discounts of 20% and 10% will be equal to a single discount of:

$-20 - 10 + (-20 \times -10)/100 = -28$ or 28%.

7. Given that: $10 \times$ CP = $8 \times$ SP

$\Rightarrow$ SP : CP = 5 : 4 = 1.25

Hence, there would be a profit of 25% in the entire transaction.

8. Given that: MP × 0.9 = 360 × 1.25

Hence, MP or marked price will be Rs. 500.

9. Per kg cost price of the tea after mixing the

two varieties = $\dfrac{(26 \times 800 + 30 \times 1440)}{(26 + 30)}$

= Rs. $\dfrac{8000}{7}$

and selling price is given as Rs. 1200

Hence, required profit percent

= $\dfrac{\left(1200 - \dfrac{8000}{7}\right)}{\dfrac{8000}{7}} \times 100 = 5\%$.

10. $x \times \dfrac{7}{10} \times \dfrac{9}{10} = \dfrac{63}{100} \times x$

Hence, there would be a net discount of 37%

11. given; CP × 12 × = SP × 10

$\Rightarrow \dfrac{SP}{CP} = \dfrac{6}{5}$

$\Rightarrow$ SP = 1.2 CP

Hence, there will be a profit of 20%

12. $MP \times \dfrac{4}{5} = \dfrac{5}{4} \times 400$

$\Rightarrow MP \times \dfrac{25}{16} \times 400$

$\Rightarrow$ MP = Rs. 625.

13. CP of (per kg) sugar after mixing

$\dfrac{40 \times 36 + 27 \times 30}{40 + 27} = Rs. \dfrac{2250}{67}$

Hence, gain percent

= $\dfrac{35 - \dfrac{2250}{67}}{\dfrac{2250}{67}} \times 100$

= $\dfrac{67 \times 35 - 2250}{2250} \times 100 = \dfrac{95}{225} \times 10$

= $\dfrac{38}{9}\%$

14. Let initial value = 100

After 1st discount of 40%, value = 60

Discount$_1$ = 40

After 2nd discount of 20%, value $60 \times \dfrac{4}{5} = 48$

Discount$_2$ = 12

∴ Single discount = (40 + 12) = 52%

15. Let CP of 1 article = x

∴ CP of 25 articles = 25 x

3P of 25 articles = $\dfrac{25x}{20} \times 25$

∴ Profit = $\dfrac{SP - CP}{CP} \times 100 = 25\%$

$\dfrac{\dfrac{625x}{20} - 25x}{25x} \times 100 = 25\%$

16. Let MP = x

SP = $\dfrac{90}{100}x$

∴ Gain = 25% and CP = 720

∴ $\dfrac{125}{100} \times 720 = \dfrac{90}{100}x$

$\Rightarrow$ x = 1000

The answer (marked price) is not available in given options

17. Cost of 26 kg of rice = 26 × 100

(@ 100/kg) = Rs. 2600

Cost of 30 kg of rice = 30 × 100

(@ Rs.180/kg) = Rs. 5400

∴ CP for 56 kg = 2600 + 5400 = 8000

SP for 56 kg

(@ Rs 150/kg) = 56 ×150 = 8400

∴ %gain = $\dfrac{8400 - 8000}{8000} \times 100 = 5\%$

18. Let initial amount = 100

Discount$_1$ = 20

Discount$_2$ = $\dfrac{5}{100}$ × remaining amount

= $\dfrac{1}{20} \times 80 = 4$

∴ Discount = 20 + 4 = 24%

19. Let CP of 1 article = x

∴ CP of 7 articles = 7x

SP of 5 articles = 7x (as given)

$\Rightarrow$ SP of 7 articles = $7 \times \dfrac{7x}{5} = 9.8x$

∴ Profit

= $\dfrac{SP \text{ of 7 articles} - CP \text{ of 7 articles}}{CP \text{ of 7 articles}} \times 100$

= $\dfrac{9.8x - 7x}{7x} \times 100$

= 40%

20. Let marked price = x

$\therefore$ SP after 5% distance = $\dfrac{95}{100}x$

CP = 475

Gain = 20%

$\therefore \dfrac{120}{100} \times 475 = \dfrac{95}{100}x$

$\Rightarrow x = 600$

21. CP for 35 kg wheat @ Rs 15/kg

$= 35 \times 15 = 525$

CP for 25 kg wheat @ Rs 20/kg

$= 25 \times 20 = 500$

Total CP for 60 kg = 525 + 500 = 1025

Total SP for 60 kg = 60×22

(@ Rs. 22/kg) = 1320

$\therefore$ Gain = $\dfrac{SP - CP}{CP} \times 100$

$= \dfrac{1320 - 1025}{1025} \times 100 = \dfrac{1180}{41}\%$

22. Let discounts = 30% & 20% = a & b

$\therefore$ single discount = $-a - b - \dfrac{ab}{100}$

$= -30 - 20 + \dfrac{600}{100} = 44\%$

23. Let CP of 1 article = x

CP of 15 articles = 15x

SP of 12 articles = 15x

$\therefore$ SP of 15 articles = $\dfrac{15x}{12} \times 15$

SP > CP

$\therefore$ Profit = $\dfrac{\dfrac{225x}{12} - 15x}{15x} \times 100 = 25\%$

Answer = Profit of 25%

24. Let marked price = x

SP after discount = $\dfrac{95}{100}x$

$\because$ CP = 950 and gain = 20%

$\therefore \dfrac{120}{100} \times 950 = \dfrac{95}{100}x$

$\Rightarrow \qquad\qquad x = 1200$

25. CP of 60 kg sugar @ Rs. 20/kg

$= 60 \times 20 = 1200$

CP of 40 kg sugar @ Rs. 25/kg

$= 40 \times 25 = 1000$

SP of 100 kg sugar @ Rs. 26/kg

$= 26 \times 100 = 2600$

$\therefore$ Gain = $\dfrac{SP - \text{total CP}}{\text{total CP}} \times 100$

$= \dfrac{2600 - 2200}{2200} \times 100 = \dfrac{200}{11}\%$

26. A/Q 0.2x = 250 ; Let the no. be x

$\Rightarrow x = 1250$

27. S.P = 1.1 (220)

= Rs. 242

28. Let C.P = Rs.x

$\Rightarrow 1.1x = 330$

$\Rightarrow x = $ Rs. 300

29. Total C.P = $10 \times 20 + 5 \times 15 = 275$

Total S.P = $21 \times 15 = 315$

$\therefore$ Profit = S.P – C.P

= Rs. 40

30. C.P = Rs. 210

loss % = 10%

$\Rightarrow SP = 0.9 (210) \Rightarrow$ S.P = 189

31. Let C.P = x

loss % = 10%

$\Rightarrow$ S. P = 0.9x = 900

$\Rightarrow x = 1000$

32. Total C.P = $20 \times 16 + 10 \times 12 = $ Rs. 440

Total S. P = $18 \times 30 = $ Rs. 540.

$\therefore$ Profit = S.P – CP = Rs. 540 – Rs. 440

Rs. 100

33. Let the Number be x

$\Rightarrow 0.15x = 9$

$\Rightarrow x = 60$

34. C.P = 260

Profit = 10%

$\Rightarrow$ S.P = 1% (260) = 286

35. S.P = 648

Profit = 8%

Let C.P = x

$\Rightarrow 1.08x = 648$

$\Rightarrow x = 600$

36. Total C.P = Rs. 30×16 Rs.$18 \times 20 = $ Rs. 840

Total S.P = Rs. $20 \times 50 = $ Rs. 1000

$\therefore$ Total gain = S.P – C.P = (1000 – 840)

= Rs. 160

37. 8% of x = 24

$\Rightarrow \dfrac{8}{100} x = 24$

$\Rightarrow x = 300$

38. CP = 550

Gain = 10%

$\therefore$ SP $= \dfrac{110}{100} \times CP = \dfrac{11}{10} \times 550$

= Rs. 605

39. SP = 608

Loss = 5%

$\therefore \dfrac{95}{100} \times CP = SP$

$\Rightarrow CP = SP \times \dfrac{100}{95} = \dfrac{608 \times 100}{95}$

40. CP of 20 kg wheat @ Rs. 16/kg

= 20 × 16 = 320

CP of 10 kg wheat @ Rs. 12/kg

= 10 × 12 = 120

SP of 30 kg wheat @ Rs. 17/kg

= 30 5 17 = 510

$\therefore$ Gain = SP – total CP

= 510 – (320 + 120)

= Rs. 70

41. Let CP = x

$\therefore$ if SP was 88, profit $= \left(\dfrac{88 - x}{x}\right) \times 100$

A/Q, $\left(\dfrac{88 - x}{x}\right) \times 100 \times 2\left(\dfrac{96 - x}{x}\right) 100$

$\Rightarrow 2(88 - x) = (96 - x)$

$\Rightarrow x = 80$

if SP = 110, profit $= \dfrac{SP - x}{x} \times 100$

$= \dfrac{110 - 80}{80} \times 100 = 37.5$

42. If SP $= \dfrac{80}{100}$ of 32500 (i.e. at 20% discount)

= 26000

& profit = 30%

$\Rightarrow \dfrac{130}{100} CP = 26000 \Rightarrow CP = 20000$

if SP is marked price i.e. 32500

Profit $= \dfrac{32500 - 20000}{20000} \times 100 = 62.5\%$

43. Let CP = 100

SP = 100 × 1.2 × 0.95 × 0.95 = 108.3

Profit % = 8.3.

44. $96000 \times 1.1 = 96000 \times \dfrac{2}{5} \times 0.94 + 96000 \times \dfrac{3}{5} \times x$

$11 = \dfrac{2}{5} \times 0.94 + \dfrac{3x}{5}$

$x = \left(1.1 - 0.94 \times \dfrac{2}{5}\right) \times \dfrac{5}{3}$

$= 0.724 \times \dfrac{5}{3} = 1.20667$

or % = 20.667 or $20\dfrac{2}{3}$.

45. $9575 \times 0.88 = 1.1x$

$x = \dfrac{9575 \times 8}{10} = 7660$

9575 – 7660 = 1915.

46. 5530 = 2150 × 0.92 + y

y = 5530 – 2150 × 0.92 = 3552

x = 3552 – 1978 = 1574.

47. CP $= \dfrac{10}{8}$ or 1.25

SP $= \dfrac{8}{10}$ or 0.8

Loss $= \dfrac{0.45}{1.25} = 36\%$.

48. A × 1.2 × 1.25 = 1500

$A = \dfrac{1500 \times 4}{6} = 1000$

49. 1000 × 1.14 = x × 1.16 + (1000 – x) × 1.08

$\Rightarrow 1.08x + 1.16x = 1000(1.14 - 1.08)$

$x = \dfrac{1000 \times 0.06}{0.08} = 750$ kg.