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*APTITUDE MASTERY SERIES*

# MODULE 5 – PROFIT & LOSS

1. If a man reduces the selling price of a fan from 400 to 380, his loss increases by 20%. What is the cost price of the fan?
(a) 100 (b) 200 (c) 400 **(d) 500**

***Solution:***

*Note:* Increase in loss%, not in loss amount

Increase in loss% = 20%

Consider loss is $x$ initially, so final loss will increase by $0.2x$ which is equal to 20.

$0.2\ x = 20$

$x = 100$

So, total cost = selling price + loss = 400 + 100 = 500

2. Siddharth buys some candies for Rs. 15 a dozen and an equal number of different candies for Rs. 12 a dozen. He sells them for Rs. 16.50 a dozen and makes a profit of Rs. 150. How many dozens of candies did he buy altogether?

**(a) 50** (b) 30 (c) 25 (d) 45

***Solution:***

Let him buy $x$ dozens of each type of candies. Then according to the question:

$16.50 \times 2x - 15x - 12x = 150$

$x = 25$

$2x = 50$ dozens

3. In a market, the price of medium quality mangoes is half that of good quality mangoes. A shopkeeper buys 80 kg good quality mangoes and 40 kg medium quality mangoes from the market and then sells them at a common price which is 10% less than the price at which he bought the good quality ones. His overall profit is:

(a) 6% **(b) 8%** (c) 10% (d) 12%

***Solution:***

Let the price of good mangoes be Rs. 100 per kg.

Cost Price = 80 x 100 + 40 x $\frac{100}{2}$ = 10,000

Selling Price = 120 x 90 = 10800

Percentage Profit = $\frac{800}{10000}$ x 100 = 8%

4. Ankit bought 20 soaps and 12 toothpastes. He marked-up the soaps by 15% on the cost price of each and the toothpastes by Rs. 20 on the cost price of each. He sold 75% of the soaps and 8 toothpastes and made a profit of Rs. 385. If the cost of a toothpaste is 60% the cost of a soap and he got no return on unsold items, what was his overall profit or loss?

**(a) Loss of Rs. 355** (b) Profit of Rs. 210

(c) Loss of Rs. 250 (d) Profit of Rs. 255

***Solution:***

Let the CP of soap be Rs. 100 each, then the CP of toothpaste would be Rs. 60 each

Ankit has sold 15 soaps and 8 toothpastes. On each toothpaste, he makes a profit of Rs.20, hence his profit on 8 toothpastes would be Rs.160. Thus, his profit on 15 soaps would be (Rs.385 – Rs.160) = Rs.225.

His profit per soap = 225/15 = Rs.15.

According to the problem, he gets no return on unsold items. Hence, 5 soaps and 4 toothpastes would be a complete loss for him. The loss he would incur for these items = 5 x 100 + 4 x 60 = Rs.740. But he has already made a profit of Rs. 385. Hence, the overall loss would be (Rs. 740 – Rs. 385) = Rs. 355.

5. A shop, which sold same marked price shirts, announced an offer – if one buys three shirts then the fourth shirt is sold at a discounted price of Rs.100 only. Patel took the offer. He left the shop with 20 shirts after paying Rs. 20,000. What is the marked price of a shirt?

(a) 1260 **(b) 1300** (c) 1350 (d) 1400

***Solution:***

If the marked price of the shirt is Rs. $x$

Then, according to the question:

$(3x + 100) \times 5 = 20000$

$x = 1300$

6. In a local shop, as part of promotional measures, the shop owner sells three different varieties of soap, one at a loss of 13 percent, another at a profit of 23 percent and the third one at a loss of 26 percent. Assuming that the shop owner sells all three varieties of soap at the same price, the approximate percentage by which average cost price is lower or higher than the selling price is

(a) 12.5 higher (b) 8.5 lower

**(c) 10.5 higher** (d) 14.5 lower

***Solution:***

Let the S.P for each type of soap be Rs.100

C.P of soap sold at 13% loss = 100/0.87 = Rs.115

C.P of soap sold at 23% profit = 100/1.23 = Rs. 81

C.P of soap sold at 26% loss = 100/0.74 = Rs. 135

Average C.P = (115 + 81 + 135) / 3 = Rs.110.3

Required percentage = (110.3 – 100) x 100/100 = 10.3%

7.Anjali collects antique stamps. She purchased two but found that she needs to raise money urgently, so she sold them for Rs. 8000 each. On one she made 20% & on other she lost 20%. How much did she gain or lose in the entire transaction? (a) 466.67 (b) 444.33

**(c) 666.67** (d) 566.33

***Solution:***

Considering the first stamp, she made 20% profit on it after selling it for Rs. 8000. So it's original price = $8000 \times \frac{100}{120} = 6666.67$

Similarly, consider second stamp. She lost 20% on it after selling it for Rs.8000. So its original price = 8000 x $\frac{100}{80}$ = 10000

Total buying price of two stamps = 6666.67 + 10000 = Rs. 16666.67

Total selling price of two stamps = 8000 + 8000 = Rs. 16000

Hence, loss = Rs.666.67

8. A vendor bought 15 oranges at Rs. 36 for 5 oranges and sold all of them at four oranges for Rs. 45. How much did the vendor earn or lose in this transaction?

(a) Loses Rs. 4.05 per orange

**(b) Gain Rs. 4.05 per orange**

(c) Gains Rs. 60 overall

(d) Loses Rs. 5.06 per orange

***Solution:***

C.P of 15 oranges = 36 x 3 = 108

S.P of 15 oranges = (45/4) x 15 = 168.75

Profit for 15 oranges = 168.75 – 108 = 60.75

Profit for 1 orange = 4.05

So, answer is profit of Rs. 4.05 per orange

9. The cost price of 21 articles is equal to the selling price of 18 articles, profit percentage is?

(a) 33.33% (b) 1.667%

(c) 25% **(d) 16.67%**

***Solution:***

Let the C.P of one article = Rs. C and S. P = Rs. S and profit = P%

21C = 18S

C = (6/7) S

C < S = Profit

S.P = (100 + P% / 100) x C.P

S.P = (100 + P% / 100) x C.P

S/C = (100 + P% / 100)

➔ 7/6 = (100 + P% / 100)
➔ 7/6 x 100 = 100 + P%
➔ 700/6 – 100 = P%
➔ 100/6 = P%

P% = 16.67

10. A dealer professes to sell his goods at cost price and uses an 880 gm weight instead of a kg. What is his percentage of gain?

(a) 13.13% (b) 13.33%

(c) 13.36% **(d) 13.63%**

***Solution:***

Let's assume Rs.1000 is cost price of 1000 gm of goods

Now dealer sells 880 gm for Rs. 1000

So, percent gain:

(1000 – 880) / 880 = 13.63

11. A shopkeeper purchased an article at 20% discount on list price, he marked up his article in such a way that after selling the article at 20% discount, he gained 20% on S.P. What percent is S.P of the list price?

**(a) 96%** (b) 94%

(c) 48% (d) 24%

***Solution:***

Let the list price be $x$

First, S.P = 80% of list price (for discount of 20%)

S.P = 80/100 * $x$ = 4/5 $x$

Second, as said gained 20% on S.P, so

120% of S.P

120/100 * S.P = 120/100 * 4/5$x$ = 24/25$x$

Third, % is S.P of the list price

So, (24/25 * $x$ * 100)% = 96%

12. A vendor bought toffees at 6 for a rupee. How many for a rupee must he sell to gain 20%?

(a) 3 (b) 4 **(c) 5** (d) 6

***Solution:***

To gain 20%, 6 toffees shall be sold for Rs. 1.20

Thus, the S.P of each toffee is 20 p

Hence for a rupee 5 toffees shall be sold to gain 20%

13. In a certain store, the profit is 320% of the cost. If the cost increases by 25% but the selling price remains constant, approximately what percentage of the selling price is the profit?

(a) 30% **(b) 70%**

(c) 100% (d) 250%

***Solution:***

Let the cost price is Rs.100. The selling price is Rs (100 + 320) = Rs. 420

Now if the cost price increases by 25%, the cost would become Rs (100 + 25) = Rs. 125

New Profit = Rs. 420 – 125 = Rs. 295

Percentage of the profit on selling price = (295/420) * 100 = 70% (approx.)

14. If the selling price is doubled, the profit triples. Find the profit percent

(a) 200/3 **(b) 100** (c) 316/3 (d) 120

***Solution:***

Let the C.P be Rs.100 and S.P be Rs. $x$, then the profit is $x$-100

Now the S.P is doubled then the new S.P is $2x$

New profit is $2x - 100$

Now as per the given condition; $3(x - 100) = 2x - 100$

Solving we get $x = 200$

Then the profit percent = (200-100)/100

Hence the profit percentage is 100%

15. A shopkeeper sells two items at the same price. If he sells one of them at a profit of 10% and the other at a loss of 10%, find the percentage profit/loss.

**(a) 1% loss** (b) 10% Loss

(c) 50% Profit (d) No profit, No loss

***Solution:***

The result always be a loss of $(\frac{x}{10})^2$ %. Hence, the answer here is $(10/10)^2$ % = 1% loss

**HOME WORK**

16. Two dealers P and Q selling the same model of TV set mark them under the same selling prices. P gives successive discounts of 20% and 15% and Q gives successive discounts of 18% and 17%. From whom is it more profitable to purchase the TV set?

**(a) From P** (b) From Q

(c) Indifferent between the two

(d) Cannot be determined

***Solution:***

Assume marked price for both to be 100.

P's selling price = 100 x 0.8 x 0.85 = 68

Q's selling price = 100 x 0.82 x 0.83 = 68.06

Buying from 'P' is more profitable.

17. A book was sold for a certain sum and there was a loss of 20%. Had it been sold for Rs. 12 more, there would have been a gain of 30%. What would be the profit if the book were sold for Rs. 4.8 more than what it was sold for?

(a) 20% (b) 10% (c) 25% **(d) No Profit, No Loss**

***Solution:***

An increase in the price by Rs. 12 will correspond to 50% of the CP.

Hence, the CP is Rs.24 and initially the book was being sold at Rs. 19.2. Hence, if there is an increment of Rs.4.8 in the selling price, there would be no profit or loss.

18. A dealer marks articles at a price that gives him a profit of 30%. 6% of the consignment of goods was lost in a fire in his premises, 24% was soiled and had to be sold at half the cost price. If the remainder was sold at the marked price, what percentage profit or loss did the dealer make on that consignment?

(a) 2% (b) 2.5% **(c) 3%** (d) 6.2%

***Solution:***

Assume that for 100 items the cost price is Rs.100, then the selling price is Rs.130.

Since 24 is sold at half the price, he would recover 24 x ½ = Rs.12 (since it is sold at half the cost price)

The remaining 70 would be sold at 70 x 1.3 = Rs.91. Total revenue = 91 + 12 = 103 → a profit of 3% (on a cost of 100)

19. Shelly goes to a shop to purchase a doll priced at Rs.400. She is offered 4 discount options by the shopkeeper. Which of these options should she opt for to gain maximum advantage of the discount offered?

**(a) Single discount of 30%**

(b) 2 successive discounts of 15% each

(c) 2 successive discounts of 20% and 10%

(d) 2 successive discounts of 20% and 12%

***Solution:***

She should opt for a straight discount of 30% as that gives her the maximum benefit.

20. A man sells a plot of land at 8% profit. If he had sold it at 15% profit, he would have received Rs.630 more. What is the selling price of the land?

(a) Rs.9320 (b) Rs.9600 (c) Rs.9820 **(d) Rs.9720**

***Solution:***

7% of the cost price = Rs.630

Thus, cost price = Rs.9000

And selling price @ 8% profit = Rs.9720