# Case Study 2:

An electronics dealer, Mr. Sharma, participated in a week-long city exhibition to sell smart home devices. He purchased a consignment of 50 smart speakers at a cost price of 2,400 rupees each. During the first four days, he sold 30 speakers at a profit of 15%. However, on the last day, to clear the remaining stock, he had to sell the remaining 20 speakers at a loss of 5%.

To fund this exhibition, Mr. Sharma had taken a short-term business loan of 1,50,000 rupees from a cooperative bank. The bank charged a simple interest rate of 10% per annum. He plans to repay the entire loan amount (Principal + Interest) exactly 6 months after the exhibition ends. Additionally, Mr. Sharma noticed that the footfall at his stall decreased by 20% on rainy days compared to sunny days. He needs to calculate his net profit or loss from the speaker sales and determine the total amount required to settle his bank debt. This financial tracking is essential for him to decide whether to participate in next year's exhibition or change his pricing strategy.

## Questions

1. What was the selling price of one smart speaker when sold at a 15% profit?

   (a) 2,700 rupees

   (b) 2,760 rupees

   (c) 2,640 rupees

   (d) 2,800 rupees

   **Answer:** (b) 2,760 rupees
   **Solution:** Profit = 15% of 2,400 = $\frac{15}{100} \times 2400 = 15 \times 24 = 360$ rupees.
   Selling Price (S.P.) = C.P. + Profit = $2400 + 360 = 2,760$ rupees.

2. For the 20 speakers sold at a 5% loss, what was the total selling price?

   (a) 45,600 rupees

   (b) 48,000 rupees

   (c) 46,200 rupees

   (d) 44,800 rupees

   **Answer:** (a) 45,600 rupees
   **Solution:** C.P. of 20 speakers = $20 \times 2400 = 48,000$ rupees.
   Loss = 5% of 48,000 = $\frac{5}{100} \times 48000 = 2,400$ rupees.
   Total S.P. = $48000 - 2400 = 45,600$ rupees.

3. Calculate the total simple interest Mr. Sharma has to pay on his loan of 1,50,000 rupees for a period of 6 months at 10% per annum.

   (a) 15,000 rupees

   (b) 7,500 rupees

   (c) 5,000 rupees

   (d) 9,000 rupees

   **Answer:** (b) 7,500 rupees
   **Solution:** $P = 1,50,000$, $R = 10\%$, $T = 6$ months $= 0.5$ years.
   S.I. $= \frac{P \times R \times T}{100} = \frac{150000 \times 10 \times 0.5}{100} = 1500 \times 5 = 7,500$ rupees.

4. If the footfall on a sunny day was 500 people, how many people visited the stall on a rainy day (given a 20% decrease)?

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(a) 400

(b) 420

(c) 480

(d) 380

**Answer:** (a) 400
**Solution:** Decrease $= 20\%$ of $500 = \frac{20}{100} \times 500 = 100$.
New footfall $= 500 - 100 = 400$.

5. What was Mr. Sharma's net profit or loss from the sale of all 50 speakers?

(a) Profit of 8,400 rupees

(b) Profit of 10,800 rupees

(c) Loss of 2,400 rupees

(d) Profit of 13,200 rupees

**Answer:** (a) Profit of 8,400 rupees
**Solution:**
Total C.P. $= 50 \times 2400 = 1,20,000$.
S.P. of first $30 = 30 \times 2760 = 82,800$.
S.P. of last $20 = 45,600$.
Total S.P. $= 82800 + 45600 = 1,28,400$.
Net Profit $=$ Total S.P. - Total C.P. $= 1,28,400 - 1,20,000 = 8,400$ rupees.