Profit and Loss

Understanding Notes:

- Profit and Loss are used to calculate how much gain or loss is made in buying and selling items.
- If the Selling Price (SP) is more than the Cost Price (CP), it is a Profit.
- If the Selling Price (SP) is less than the Cost Price (CP), it is a Loss.
- Cost Price (CP): The price at which an article is bought.
- Selling Price (SP): The price at which an article is sold.
- Profit and Loss are always calculated on the Cost Price unless mentioned otherwise.
- Percentages are used to easily compare Profit or Loss with Cost Price.

Important Points:

- Profit = SP CP
- Loss = CP SP
- Profit Percent = $\left(\frac{Profit}{CP}\right) \times 100$

• Loss Percent =
$$\left(\frac{Loss}{CP}\right) \times 100$$

• SP = CP + Profit

- SP = CP Loss
- If Profit % and CP are given,

$$\mathsf{SP} = \mathsf{CP} \times \frac{100 + Profit \%}{100}$$

• If Loss % and CP are given,

$$\mathsf{SP} = \mathsf{CP} \times \frac{100 - Loss \%}{100}$$

Different Types of Examples with Solutions:

Example: Easy (Find Profit or Loss)

➤ A shopkeeper buys a pen for ₹30 and sells it for ₹45. Find the profit.

Solution: Profit = SP – CP = 45 – 30 = ₹15

Example Easy (Find Loss)

➤ A man buys a chair for ₹500 and sells it for ₹450. Find the loss.

Solution: Loss = CP – SP = 500 – 450 = ₹50

Example: Moderate (Find Profit Percent)

Cost Price of a book is ₹200 and it is sold for ₹250. Find the profit percent.

Solution: Profit = SP – CP = 250 – 200 = ₹50

Profit % =
$$\left(\frac{50}{200}\right) \times 100 = 25\%$$

Example Moderate (Find SP when Profit % is given)

➤ Find the Selling Price if the Cost Price is ₹400 and Profit is 20%.

Solution: SP = CP ×
$$\frac{100 + Profit \%}{100}$$

SP = 400 × $\left(\frac{120}{100}\right)$ = ₹480

Example Moderate (Find CP when SP and Loss % are given)

- A man sold a watch for ₹570 at a loss of 5%. Find the Cost Price.
- Solution:

• SP = CP ×
$$\frac{100 - Loss \%}{100}$$

• 570 = CP ×
$$\left(\frac{95}{100}\right)$$

• CP =
$$\frac{570 \times 100}{95}$$

• CP = ₹600

Summary Points:

- Profit when SP > CP, Loss when SP < CP.
- Profit or Loss is always based on CP.
- Use formulas for Profit %, Loss %, SP, and CP.
- Increases and decreases in price are directly linked to percentage change.
- Always cross-check what is given: CP, SP, Profit %, or Loss %.