SNS COLLEGE OF TECHNOLOGY

An Autonomous Institution

Coimbatore-35

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DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

23GET275 – VQAR I

II YEAR/ III SEMESTER

UNIT 1 – QUANTITATIVE ABILITY I

TOPIC 7 :**Profit, loss and Discount**

Definition

Cost Price:
The price, at which an article is purchased, is called its cost price, abbreviated as C.P.

Selling Price:
The price, at which an article is sold, is called its selling prices, abbreviated as S.P.

Profit or Gain:
If S.P. is greater than C.P., the seller is said to have a profit or gain.

Loss:
If S.P. is less than C.P., the seller is said to have incurred a loss.

Proportion

1.Gain = (S.P.) - (C.P.)

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

3.Loss or gain is always reckoned on C.P.

4.Gain Percentage: (Gain %)

$$\text{Gain \%} = \left(\frac{\text{Gain} \times 100}{\text{C.P.}}\right)$$

Fourth Proportional

Loss Percentage: (Loss %)

$$\text{Gain \%} = \left(\frac{\text{Gain x 100}}{\text{C.P.}}\right.$$

Selling Price: (S.P.)

$$\text{SP} = \left[\frac{(100 + \text{Gain \%})}{100} \text{ x C.P}\right.$$

Comparison of Ratios

Selling Price: (S.P.)

$$SP = \left[\frac{(100 - \text{Loss }\%)}{100} \times C.P.\right]$$

Cost Price: (C.P.)

$$C.P. = \left[\frac{100}{(100 + \text{Gain }\%)} \times S.P.\right]$$

9. Cost Price: (C.P.)

$$C.P. = \left[\frac{100}{(100 - \text{Loss }\%)} \times S.P.\right]$$

Duplicate Ratios

1.If an article is sold at a gain of say 35%, then S.P. = 135% of C.P.

2.If an article is sold at a loss of say, 35% then S.P. = 65% of C.P.

3.When a person sells two similar items, one at a gain of say x%, and the other at a loss of x%, then the seller always incurs a loss given by:

$$\text{Loss \%} = \left(\frac{\text{Common Loss and Gain \%}}{10}\right)^2 = \left(\frac{x}{10}\right)^2.$$

4. If a trader professes to sell his goods at cost price, but uses false weights, then

$$\text{Gain \%} = \left[\frac{\text{Error}}{(\text{True Value}) - (\text{Error})} \times 100\right]\%.$$

Variations

1.Alfred buys an old scooter for Rs. 4700 and spends Rs. 800 on its repairs. If he sells the scooter for Rs. 5800, his gain percent is:

(A) $4\frac{4}{7}\%$

(B) $5\frac{5}{11}\%$

(C) 10%

(D) 12%

Answer: Option (B)

Explanation:

Cost Price (C.P.) = Rs. (4700 + 800) = Rs. 5500.

Selling Price (S.P.) = Rs. 5800.

Gain = (S.P.) - (C.P.) = Rs.(5800 - 5500) = Rs. 300.

$$\text{Gain \%} = \left(\frac{300}{5500} \times 100\right)\% = 5\frac{5}{11}\%$$

Example

2.The cost price of 20 articles is the same as the selling price of x articles. If the profit is 25%, then the value of x is:

1. 15
2. 16
3. 18
4. 25

Answer: Option

Explanation:

Let C.P. of each article be Re. 1 C.P. of x articles = Rs. x.

S.P. of x articles = Rs. 20.

Profit = Rs. (20 - x).

$$\therefore \left(\frac{20 - x}{x} \times 100 = 25\right)$$

$$\Rightarrow 2000 - 100x = 25x$$

$$125x = 2000$$

$$\Rightarrow x = 16.$$

Example

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

1. 6623
2. 100
3. 10513
4. 120

Answer: Option (B)

Explanation:

Let C.P. be Rs. x and S.P. be Rs. y.

Then, $3(y - x) = (2y - x) \Rightarrow y = 2x$.

Profit = Rs. $(y - x)$ = Rs. $(2x - x)$ = Rs. x.

$$\therefore \text{ Profit } \% = \left(\frac{x}{x} \times 100\right)\% = 100\%$$

THANK YOU