Quadrant II – Transcript and Related Materials

Programme: F. Y. B. Com

Subject: Mathematics

Paper Code: CAC102

Paper Title: Commercial Arithmetic-II (CC 8)

Unit IV: Commercial Mathematics

Module Name: Percentage: Conversion of Fractions and Decimals into Percentage and vice versa, Percentage of a quantity, Rate Percent and related problems.

Module No: 46

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Notes:

Percentage:

Definition: Percentage is a fraction whose denominator is 100 and numerator is a definite quantity called the rate percent.

For eg: 15% = 15/100, 1% = 1/100

Conversion of Fractions into Percentage:

- To convert fractions into percentage multiply the numerator and denominator by a quantity so that the denominator becomes 100.
- Eg:

1. (1/5)100=20% or $\frac{1}{5} \times \frac{20}{20} = \frac{20}{100} = 20\%$
2. (5/6)100=75%

Conversion of Percentage into Fraction:

- First divide the rate percent by 100 and then convert the fraction into its smallest form by dividing the numerator and denominator by their highest common factor.

- Eg:

1. 60% = 60/100=3/5

Conversion of Decimals into Percentage:

- To convert decimals into percentage multiply the fraction by 100 and put % sign.

- Eg:

1. 6.56 = 6.56 x 100 = 656%

Conversion of Percentage into decimals:

Obtain the percentage which is to be converted into decimal then remove the percentage symbol and divide it by 100. Express the fraction in the decimal form. When we remove % symbol then move the decimal two places to the left.

Eg:

1. 0.03% = 0.03/100 = 0.0003

Percentage of a Quantity:

A definite percentage of a quantity is obtained by multiplying that quantity by rate percent and dividing it by 100.

$$\textbf{Percent value} = \frac{\textbf{Quantity} \times \textbf{Rate percent}}{\textbf{100}}$$

Examples:

1) 30% of 80kg is 24kg.

Sol: $Percent\ value = \frac{Quantity\ \times Rate\ percent}{100} = \frac{80\times30}{100} = 24kg$

Rate percent:

- **To compare the rate Percentage of Two Quantities.**

Let x and y be two quantities of the same kind and the rate percent be p, such that p% of x = y.

$$\textbf{Rate}\ \% = \frac{\textbf{Percent value}}{\textbf{Quantity}} \times \textbf{100} = \frac{\textbf{y}}{\textbf{x}} \times \textbf{100}$$

Example:

1) Rs.64 is what percent of Rs. 800?

Sol: Let Rs.64 be P% of Rs. 800.

i.e. P% of Rs. 800 = Rs.64

$$\therefore Rate\ \% = \frac{\text{Percent value}}{\text{Quantity}} \times 100$$

$$\therefore P\ \% = \frac{64}{800} \times 100$$

$$\therefore\ \% = \frac{64}{8} = 8\%$$

Thus Rs. 64 is 8% of Rs.800

- **To find Quantity when Rate Percent and Percentage are known.**

If rate percent and percent value are given then

$$\therefore \mathbf{Quantity} = \frac{\mathbf{Percent\ value}}{\mathbf{Rate}\ \%} \times \mathbf{100}$$

Problems:

1) If 20% 0f the students in a class is 35, find the total number of students in the class.

Sol: Let the total number of students in the class be x.

Then 20% of x = 35

$$\therefore Quantity = \frac{Percent\ value}{Rate\ \%} \times 100$$

$$\therefore x = \frac{35}{20} \times 100$$

$$\therefore x = 35 \times 5 = 175$$

Therefore, the total number of students is 175.