MIND MAP

Mean for a grouped frequency distribution

(i) Direct method : $\bar{x} = \frac{\Sigma(f_i x_i)}{\Sigma f_i}$.

(ii) Assumed-mean method

$$\bar{x} = A + \frac{\Sigma f_i d_i}{n}$$

(iii) Step-deviation method

$$\bar{x} = A + \left[h \frac{\sum (f_i \times u_i)}{\sum f_i} \right]$$

Median for grouped data

$$Me = \ell + \left[h \times \frac{\left(\frac{N}{2} - c \right)}{f} \right], \text{ where}$$

λ = lower limit of median class,
h = width of median class,
f = frequency of median class,
c = cumulative frequency of the class preceding the median class, $N = \Sigma f_i$.

Mode

$$M_0 = \ell + h.\left[\frac{(f_1 - f_0)}{(2f_1 - f_0 - f_2)} \right], \text{ where}$$

ℓ = lower limit of the modal class interval;
f_1 = frequency of the modal class;
f_0 = frequency of the class preceding the modal class;
f_2 = frequency of the class succeeding the modal class;
h = width of the class interval.

Graphical presentation of cumulative frequency distribution

- **For a 'less than' series**

On a graph paper, we mark the upper class limits along the x-axis and the corresponding cumulative frequencies along the y-axis.

(i) On joining these points successively by line segments, we get a polygon, called cumulative frequency polygon.

(ii) On joining these points successively by smooth curves, we get a curve, known as cumulative frequency curve or an ogive.

Graphical presentation of cumulative frequency distribution

- **For a 'greater than' series**

On a graph paper, we mark the lower class limits along the x-axis and the corresponding cumulative frequencies along the y-axis.

(i) On joining these points successively by line segments, we get a polygon, called cumulative frequency polygon.

(ii) On joining these points successively by smooth curves, we get a curve, known as cumulative frequency curve or an ogive.

Relationship among Mean, Median and Mode

Mode = 3(Median) −2(Mean)

or Median = Mode $+\frac{2}{3}$ (Mean − Mode)

or Mean = Mode $+\frac{3}{2}$ (Median − Mode)