14.2 DEFINITIONS

(i) Variate : The numerical quantify whose value varies in objective is called a variate, generally a variate is represented by x. There are two types of variate.

(A) Discrete variate : its magnitude is fixed. For example, the number of teacher in different branches of a institute are 30, 35, 40 etc.

(B) Continuous variate : is magnitude is not fixed. It is expressed in groups like 10 - 20, 20 - 30, ... etc.

(ii) Rage : The difference of the maximum and the minimum values of the variable x is called range.

(iii) Class frequency : In each class the number of times a data is repeated in known as its class frequency.

(iv) Class Interval = $\dfrac{\text{Range}}{\text{Number of classes}}$

It is generally denoted by h or i.

(v) Class limits : The lowest and the highest value of the class are known as lower and upper limited restively of that class.

(vi) Class mark : The average of the lower and the upper limits of a class is called the mid value or the class mark of that class. It is generally denoted by x.

If x be the mid value and h be the class interval, then the class limits are $\left(x-\frac{h}{2}, x+\frac{4}{2}\right)$.

Ex.1 The mid values of a distribution are 54, 64, 74, 84 and 94. Find the class interval and class limits.

Sol. The class interval is the difference of two consecutive class marks, therefore class interval (h) = 64- 54 = 10.

Here the mid values are given and the class interval is 10.

So class limits are

For 1st class $54-\frac{10}{2}$ to $54+\frac{10}{2}$ or 49 to 59

For 2nd class $64-\frac{10}{2}$ to $64+\frac{10}{2}$ or 59 to 69

For 3rd class $74-\frac{10}{2}$ to $74+\frac{10}{2}$ or 69 to 79

For 4th class $84-\frac{10}{2}$ to $84+\frac{10}{2}$ or 79 to 89

For 5th class $94-\frac{10}{2}$ to $94+\frac{10}{2}$ or 89 to 99

Therefore class limits are 49 - 59, 59 - 69, 79 - 89, and 89 - 99.