

By Dr. (Mrs) Prabhavati
Mawani College

Lecture NO - 34

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MODE

The value which is repeated maximum times in a series is considered as Mode. According to A.V. Tuttle 'mode is the value which has the greatest frequency density in its immediate neighbourhood.'

Mode can also be obtained in individual, discrete & continuous series.

① Ungrouped data (Individual Series) :- Mode can be ascertained by only inspection in individual series. The value which is repeated maximum times in an individual series is Mode.

Ex - Water percentage of 15 fishes of a sp. was recorded as 60, 64, 62, 76, 70, 74, 70, 84, 82, 72, 76, 84, 78, 54 & 88.

Find Mode in this series.

Ans - By only inspection of data 84 is the Mode because it is repeated many times i.e. 3 times.

Grouped Data (Discrete Series) :- In grouped data Mode can be obtained by 2 methods (a) By only inspection & (b) By grouping method.

(a) By inspection only - From above example series is converted into discrete series as -

Water % =	60	62	64	70	72	74	76	78	82	84	86
	1	1	1	2	1	1	2	1	1	3	1

Above chart indicates that item 84 has maximum frequency i.e. 3. Therefore 84 is the Mode of the series.

⑥ By grouping, If in a set of data in discrete series more (more than 2 or 3) items poses the same frequency then mode can't be located by simple inspection. In this position the mode is located by method of grouping. It can be done in 3 steps.

① To make grouping table.

② To make analysis table.

③ To locate mode

Grouped data (Continuous Series) :- This formula is used to get Mode in continuous series.

$$\text{Mode} = 3Md^n - 2\text{Mean}$$

$$\text{Mode} = l_1 + \frac{f_1 - f_0}{2f_1 - f_0 - f_2} \times i \quad (\text{General formula})$$

Here l_1 = The true lower level of the modal class.

f_1 = The frequency of the modal class.

f_0 = The frequency of the preceding modal class.

f_2 = The frequency of the class succeeding modal class.

i = Width of the class interval.

Ex - Find the Mode of frequency distribution given below:-

Scores class - 12.5-22.5, 22.5-32.5, 32.5-42.5, 42.5-52.5, 52.5-62.5.

Frequency 48 66 14 14 2

Length of classrooms.	Frequency						No. of Times group occurs in the maximum		
	f	Two's		Three's					
		II	III	IV	V	VI			
12.5-22.5	48	114	80	128	94	30	2		
22.5-32.5	66						5		
32.5-42.5	14	28	16				4		
42.5-52.5	14						2		
52.5-62.5	2						2		

On perusal of grouping & analyses it appears that modal class is 22.5-32.5 because grouping of frequency of this class is maximum i.e. 5 times.

Thus here $l_1 = 22.5$, $f = 66$, $f_0 = 48$, $f_2 = 14$ & $h = 10$

$$\begin{aligned} \text{Mode} &= l_1 + \frac{f_1 - f_0}{2f_1 - f_0 - f_2} \times h = 22.5 + \frac{66 - 48}{2 \times 66 - 48 - 14} \times 10 \\ &= 22.5 + \frac{18}{132 - 48 - 14} \times 10 = 22.5 + \frac{18}{70} \times 10 \\ &= 22.5 + \frac{180}{70} = 22.5 + 2.57 = 25.07 \text{ Ans.} \end{aligned}$$

Merits & Demerits of Mode :-

Merits - ① It is quickest method to measure the central tendency.

② It is easily understood.

③ Its computation is based on all the varieties.

④ It is not affected by extreme varieties provided they do not belong to modal class.

Demerits

Demerits :- ① It is not well defined. Therefore Mode is rarely used for higher biological scientific and medical purposes.

② It is not capable of being handled algebraically because its value is not based on all the observations.