MODE

Dr. Indrajit Ray, Associate Professor
Department of Human Physiology, Women's College
Agartala, Tripura (West), India, PIN-799001

A mode is that value among a set of observed values, which appears most often i.e., the value having the maximum frequency. It may happen that more than one value may have the same highest frequency, and the data having more than one same highest frequency is said to be multimodal.

A. MODE OF UNGROUPED DATA

Ungrouped data is raw data or values that have not been categorized into groups under different intervals of same range.

Example: Resting heart rates of 10 men of a certain village are 63, 67, 69, 72, 72, 72, 74, 74, 77 and 80. Compute the mode of the observed resting heart rates.

Answer:

A frequency distribution table of observed values or data is prepared as follows:

Resting heart rates/min (x_i)	63	67	69	72	74	77	80
Number of men (f_i)	1	1	1	3	2	1	1

Here, the most frequently occurring resting heart is 72, and its frequency is 3. So, the mode of observed resting heart rates is 72 bpm.

B. MODE OF GROUPED DATA

Grouped data are data constituted by arranging individual observed values or data of a variable into groups under different intervals of same range, so that frequency distributions of these groups serve as a convenient way of summarizing the data.

Example: Body weights (kg) of 40 men of a certain village were recorded and summarized in the table given below:

Class interval of body weight (kg)	45-50	50-55	55-60	60-65	65-70	70-75	75-80
Number of men (f_i)	3	5	7	11	5	7	2

Find the mode of the recorded body weights.

Answer:

For the grouped data of frequency distribution, it is impossible to find the mode by looking at frequencies. Here, we can only find a class with the highest frequency, called the **modal class.** A value inside the modal class is considered to be the mode, and it is given by the following formula:

$$\text{Mode} = l + \{(f_1 - f_0)/(2f_1 - f_0 - f_2)\} \times h$$

Where l = lower limit of the modal class,

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 = size of the class interval.

For the above-mentioned grouped frequency data, the highest class frequency is 11, and this frequency lies in the class 60-65. Therefore, the modal class is 60-65.

Here, $l = 60$, $f_1 = 11$, $f_0 = 7$, $f_2 = 5$, and $h = 5$

So, mode $= 60 + \{(11 - 7)/(2 \times 11 - 7 - 5)\} \times 5$

$= 60 + 20/10$

$= 60 + 2$

$= 62$

Therefore, the mode of the body weights is 62 kg.