Lecture.3

Graphical representation – Histogram – Frequency polygon and Frequency curve

Graphs

Graphs are charts consisting of points, lines and curves. Charts are drawn on graph sheets. Suitable scales are to be chosen for both x and y axes, so that the entire data can be presented in the graph sheet. Graphical representations are used for grouped quantitative data.

Histogram

When the data are classified based on the class intervals it can be represented by a histogram. Histogram is just like a simple bar diagram with minor differences. There is no gap between the bars, since the classes are continuous. The bars are drawn only in outline without colouring or marking as in the case of simple bar diagrams. It is the suitable form to represent a frequency distribution.

Class intervals are to be presented in x axis and the bases of the bars are the respective class intervals. Frequencies are to be represented in y axis. The heights of the bars are equal to the corresponding frequencies.

Example

Draw a histogram for the following data

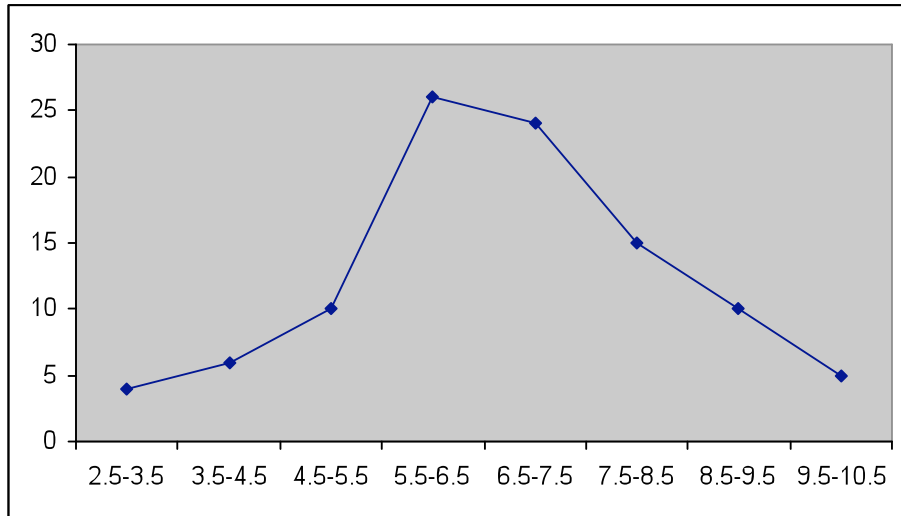| Seed Yield (gms)	No. of Plants
2.5-3.5	4
3.5-4.5	6
4.5-5.5	10
5.5-6.5	26
6.5-7.5	24
7.5-8.5	15
8.5-9.5	10
9.5-10.5	5

Histogra
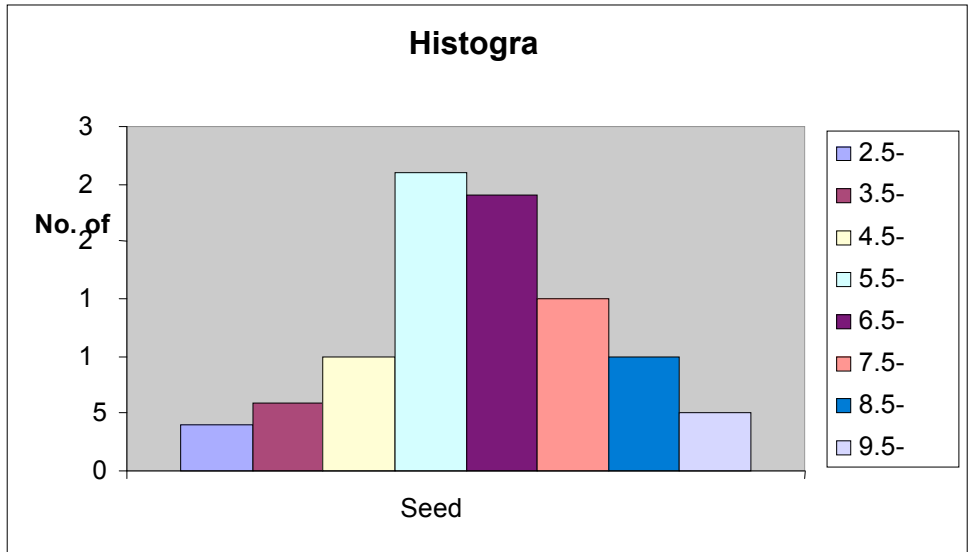
Frequency Polygon

The frequencies of the classes are plotted by dots against the mid-points of each class. The adjacent dots are then joined by straight lines. The resulting graph is known as frequency polygon.

Example

Draw frequency polygon for the following data

| Seed Yield (gms)	No. of Plants
2.5-3.5	4
3.5-4.5	6
4.5-5.5	10
5.5-6.5	26
6.5-7.5	24
7.5-8.5	15
8.5-9.5	10
9.5-10.5	5

Frequency curve

The procedure for drawing a frequency curve is same as for frequency polygon. But the points are joined by smooth or free hand curve.

Example

Draw frequency curve for the following data

| Seed Yield (gms)	No. of Plants
2.5-3.5	4
3.5-4.5	6
4.5-5.5	10
5.5-6.5	26
6.5-7.5	24
7.5-8.5	15
8.5-9.5	10
9.5-10.5	5
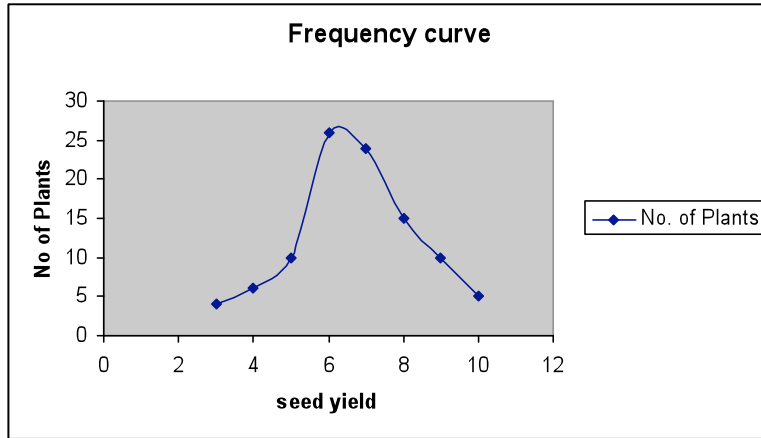
Frequency curve

Ogives

Ogives are known also as cumulative frequency curves and there are two kinds of ogives. One is less than ogive and the other is more than ogive.

Less than ogive: Here the cumulative frequencies are plotted against the upper boundary of respective class interval.

Greater than ogive: Here the cumulative frequencies are plotted against the lower boundaries of respective class intervals.

Example

Continuous Interval	Mid Point	Frequency	< cumulative Frequency	> cumulative frequency
0-10	5	4	4	29
10-20	15	7	11	25
20-30	25	6	17	18
30-40	35	10	27	12
40-50	45	2	29	2

Ogives

Cumulative Frequency vs Boundary values
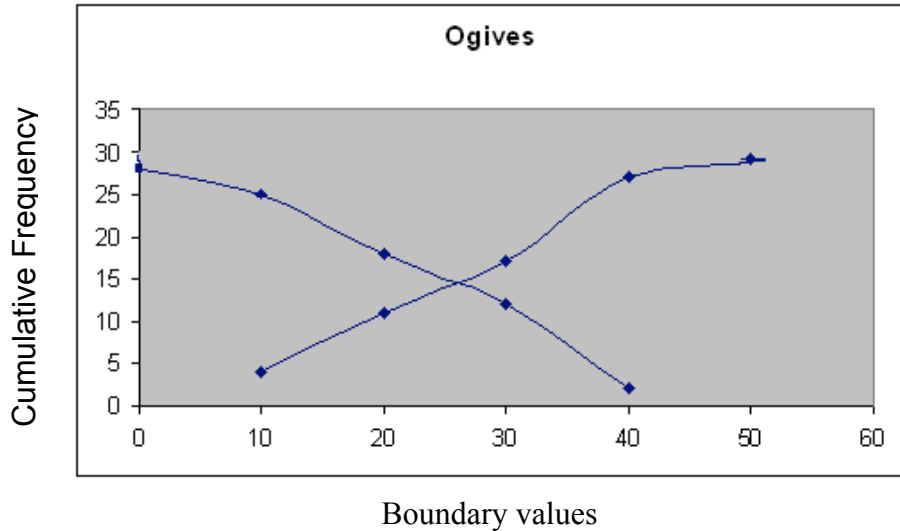
Questions

1. With the help of histogram we can draw

   (a) Frequency polygon   (b) frequency curve

   (c) Frequency distribution   (d) all the above

     Ans: all the above

2. Ogives for more than type and less than type distribution intersect at
    (a) Mean   (b) median
    (c) Mode   (d) origin

     Ans: median

3. To draw the frequency polygon we take the mid values in the X axis.

4. To draw the frequency polygon we take the mid values in the X axis.

5. In a frequency curve the points are joined by bits of straight lines
     Ans: False

6. He stogram can be drawn for equal and unequal classes
     Ans: True

7. Explain how to draw frequency curve

8. Explain how to draw histogram.

9. Explain the diagrams that can be drawn for a frequency distribution table

10. Explain how to draw less than and more than Ogives.