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## FACULTY OF ENGINEERING & TECHNOLOGY

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# LECTURE- 4

BSc (AG)  
2<sup>nd</sup> Year , IIIrd Sem.  
Statistical Methods  
AES-213



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# Outline of Lecture

## Outline of lecture

- Graphical Representation of data
- Some points to Remember
- General rules of Graphic Presentation of data & Information
- Merits of Graph
- Limitations of Graph
- Test Your Skills (Questions based on Lecture)
- Suggested Readings & References



## Some points to remember

❖ We measure the distance of the point from the Y-axis along the X-axis. Similarly, we measure the distance of the point from the X-axis along the Y-axis. Therefore, to measure 3 units from the Y-axis, we move 3 units along the X-axis and likewise for the other coordinate.

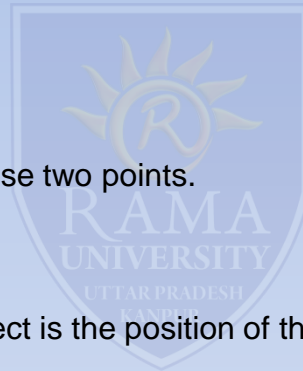
❖ We then draw perpendicular lines from these two points.

❖ The point where the perpendiculars intersect is the position of the point P.

❖ We denote it as follows (3,5) or (abscissa, ordinate). Together, they are the coordinates of the point P.

❖ The four parts of the plane are Quadrants.

❖ Also, we can plot different points for a different pair of values.



## General Rules for Graphic Presentation of Data and Information:

There are certain guidelines for an attractive and effective graphic presentation of data and information. These are as follows:

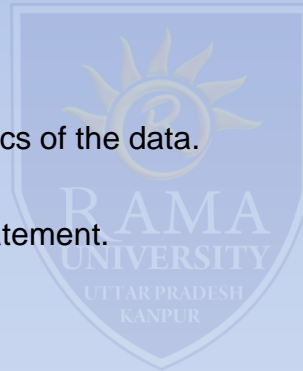
1. **Suitable Title** – Ensure that you give a suitable title to the graph which clearly indicates the subject for which you are presenting it.
2. **Unit of Measurement** – Clearly state the unit of measurement below the title.
3. **Suitable Scale** – Choose a suitable scale so that you can represent the entire data in an accurate manner.
4. **Index** – Include a brief index which explains the different colors and shades, lines and designs that you have used in the graph. Also, include a scale of interpretation for better understanding.
5. **Data Sources** – Wherever possible, include the sources of information at the bottom of the graph.
6. **Keep it Simple** – You should construct a graph which even a layman (without any exposure in the areas of statistics or mathematics) can understand.
7. **Neat** – A graph is a visual aid for the presentation of data and information. Therefore, you must keep it neat and attractive. Choose the right size, right lettering, and appropriate lines, colors, dashes, etc.

## Merits of a Graph

- The graph presents data in a manner which is easier to understand.
- It allows us to present statistical data in an attractive manner as compared to tables. Users can understand the main features, trends, and fluctuations of the data at a glance.
- A graph saves time.
- It allows the viewer to compare data relating to two different time-periods or regions.
- The viewer does not require prior knowledge of mathematics or statistics to understand a graph.
- We can use a graph to locate the mode, median, and mean values of the data.
- It is useful in forecasting, interpolation, and extrapolation of data.

## Limitations of a Graph

- A graph lacks complete accuracy of facts.
- It depicts only a few selected characteristics of the data.
- We cannot use a graph in support of a statement.
- A graph is not a substitute for tables.
- Usually, laymen find it difficult to understand and interpret a graph.
- Typically, a graph shows the unreasonable tendency of the data and the actual values are not clear.



## Test Your Skills (Fill in the blanks)

1. Draw the four quadrants in X-Y plane.....
2. What is index .....
3. Write one merit of graph .....
4. Give one demerits of graph .....





# Suggested Readings & References

## Suggested Readings & References

- 1) Statistical Methods: P.N. Arora, Sumeet Arora & S. Arora; S. Chand & Company Ltd.
- 2) Fundamental of Mathematical Statistics: S.C. Gupta & V. Kapoor; Sultan Chand & Sons.
- 3) Statistics: M.R. Spiegel; Schaum's Outline Series, Mc-Graw Hill Publication.
- 4) Advanced Engineering Mathematics: Erwin Kreyszig; John Wiley & Sons Inc.
- 5) Elements of Statistics: J.P. Chauhan & S. Kumar; Krishna Publication.

The logo of Rama University is a shield-shaped emblem. At the top is a sun with rays. Below the sun is a circle containing the letter 'R'. Underneath the circle, the word 'RAMA' is written in a serif font, followed by 'UNIVERSITY' in a smaller font. At the bottom of the shield, the word 'Rama' is written in a script font.

**\* THANK YOU \***