PROBABILITY AND STATISTICAL METHODS

Paper No. : 6.4
Maximum Marks : 100
Credits :
Teaching Period :

1. Introduction to Statistics, Development, Importance and Scope of Statistics
1.1 Types of data
1.2. Presentation of Data by Tables and Graphs
1.2.1 Frequency distributions: Discrete and Continuous
1.2.2 Graphical representation of distributions
1.2.3 Histograms and frequency polygons (for equal and unequal class intervals)
1.2.4 Cumulative frequency distributions (Partition values) and their graphical representation

2. Measures of Location and Dispersion

3. Moments
3.1 About origin
3.2 About mean
3.3 Factorial
3.4 Relationship among them
3.5 Effect of change of origin and scale
3.6 Sheppard's Correction

4. Measures of Skewness

5. Measures of Kurtosis

6. Bivariate Data and Scatter Diagram

7. Principle of Least Squares
7.1 Fitting of polynomial and exponential curves

8. Probability Theory
8.1 Random Experiments
8.2 Sample points
8.3 Sample space and events of an experiment

9. Definition of Probability
9.1 Classical Approach
9.2 Relative Frequency Approach
9.3 Kolmogrov's approach to Probability
10. Theorems on Probability

11. Conditional Probability

12. Independent Events

13. Bayes' Theorem and its Applications

14. Random Variables: Discrete

15.1 pmf and cdf
15.2 Illustrations and properties

16. Random Variables: Continuous
16.1 pdf and cdf
16.2 Illustrations and properties

17. Univariate Transformation

LIST OF PRACTICAL.S

1. Problems based on graphical representation of data

a. Histograms (equal class intervals and unequal class intervals)

b. Frequency polygon

c. Pie chart

d. Ogives

2. Problems based on measures of central tendency using raw data

3. Problems based on measures of central tendency using frequency distribution

4. Problems based on measures of central tendency for change of origin and scale

5. Problems based on measures of central tendency for missing frequency

6. Estimation after correcting the incorrect observation

7. Problems based on measures of dispersion using raw data

8. Problems based on measures of dispersion using frequency distribution

9. Problems based on measures of dispersion for change of origin and scale

10. Problems based on combined mean and variance and coefficient of variation

11. Problems based on Moments using raw data

12. Problems based on moments using frequency distribution

13. Problems based on moments for change in origin and scale

a. Relationships between moments about origin and central moments

b. Skewness and kurtosis

14. Fitting of polynomials

15. Fitting of exponential curves