

B.A/B. Sc-I Semester-I

Paper-I (ST-101)

Time: 3 Hours

M.M.:B. Sc: 40+10*

B.A: 28+7*

* Internal Assessment

Statistical Methods-I

Note : There will be nine questions in all. Question No.1 will be compulsory covering whole of the syllabus and comprising 5 to 8 short answer type questions. Rest of the eight questions will be set from the four units uniformly i.e. two from each unit. The candidate will be required to attempt five questions in all selecting one question from each unit and the compulsory one. All the questions will carry equal marks except the compulsory question, the distribution of marks for which will be as follows:-

B.Sc.8 marks and B.A. 6 marks.

UNIT-I

Introduction of Statistics : Origin, development, definition, scope, uses and limitations.

Types of Data : Qualitative and quantitative data, nominal and ordinal data, time series data, discrete and continuous data, frequency and non-frequency data.

Collection and Scrutiny of Data : Collection of primary and secondary data- its major sources including some government publications, scrutiny of data for internal consistency and detection of errors of recording, classification and tabulation of data.

UNIT-II

Presentation of Data : Frequency distribution and cumulative frequency distribution, diagrammatic and graphical presentation of data, construction of bar, pie diagrams, histograms, frequency polygon, frequency curve and ogives.

Measures of Central Tendency and Location : Arithmetic mean, median, mode, geometric mean, harmonic mean; partition values- quartiles, deciles, percentiles and their graphical location along with their properties, applications, merits and demerits.

UNIT-III

Measures of Dispersion : Concept of dispersion, characteristics for an ideal measure of dispersion. Absolute and relative measures based on: range, inter quartile range, quartile deviation, coefficient of quartile deviation, Mean deviation, coefficient of mean deviation, standard deviation (σ), coefficient of variation and properties of these measures.

Moments, Skewness and Kurtosis: Moments about mean and about any point and derivation of their relationships, effect of change of origin and scale on moments, Sheppard's correction for moments (without derivation), Charlier's checks; Coefficients of Skewness and Kurtosis with their interpretations.

UNIT-IV

Theory of Attributes : Symbolic notations, dichotomy of data, class frequencies, order of class frequencies, consistency of data, independence and association of attributes, Yule's coefficient of association and coefficient of colligation.

Books recommended

S. No.	Title of Book	Name of author	Publisher
1.	Applied Statistics	Neter J., Wasserman W., & Whitmore G.A.	Allyn & Bacon, Inc.
2.	Applied General Statistics	Croxton F.E., Cowden D.J. & Kelin S.	Prentice Hall
3.	Fundamental of Statistics Vol. I	Goon A.M., Gupta M.K., Dasgupta B.	World Press, Calcutta
4.	Statistics	Johnson R.	Wiley Publishers
5.	Basic Statistics	Aggarwal B.L.	New Age International
6.	Fundamentals of Mathematical Statistics	Gupta S.C.& Kapoor V.K.	Sultan Chand & Sons
7.	Programmed Statistics	Aggarwal B.L.	New Age International
8.	An Introduction To Theory of Statistics	G. Udny, Kendal M.G	Charles Griffin and co.

B.A/B. Sc-I Semester-I

Paper-II (ST-102)

Time: 3 Hours

M.M.:B. Sc: 40+10*

B.A: 28+7*

* Internal Assessment

Probability Theory

Note : There will be nine questions in all. Question No.1 will be compulsory covering whole of the syllabus and comprising 5 to 8 short answer type questions. Rest of the eight questions will be set from the four units uniformly i.e. two from each unit. The candidate will be required to attempt five questions in all selecting one question from each unit and the compulsory one. All the questions will carry equal marks except the compulsory question, the distribution of marks for which will be as follows:-

B.Sc.8 marks and B.A. 6 marks.

UNIT-I

Concepts in Probability: Random experiment, trial, sample point, sample space, operation of events, exhaustive, equally likely and independent events; Definition of probability-classical, relative frequency, statistical and axiomatic approach.

UNIT-II

Conditional probability. Addition and multiplication laws of probability and their extension to n events. Boole's inequality; Baye's theorem and its applications.

UNIT-III

Random Variable and Probability Functions: Definition of random variable, discrete and continuous random variable, probability function, probability mass function and probability density functions, distribution function and its properties, functions of random variables, joint, marginal and conditional probability distribution function.

Mathematical Expectation : Definition and its properties- moments, addition and multiplication theorem of expectation. Conditional expectation and conditional variance.

UNIT-IV

Generating Functions: Moments generating function, cumulant generating function, probability generating function along with their properties.

Books recommended

S. No.	Title of Book	Name of author	Publisher
1.	Fundamentals of Mathematical Statistics	Gupta S.C.& Kapoor V.K.	Sultan Chand & Sons
2.	Probability for Statistical Decision Making	Edward P.J., Ford J.S. and Lin	Prentice Hall
3.	Elementary Probability	David S.	Oxford Press
4.	Introduction to Mathematical Statistics	Hoel P.G.	Asia Pub. House
5.	New Mathematical Statistics	Bansi Lal & Arora S.	Satya Prakashan
6.	Introduction to Mathematical Statistics	Hogg and Craig	Prentice Hall