

BCAC(CC)2101T: Probability and Statistics

Internal Assessment: 30*

Maximum

Marks: 100

University Examination: 70

Maximum

Time: 3 Hrs

Min Pass Marks: 35%

Lectures to be delivered: 45-55 Hrs

* Division of marks for Internal Assessment is as follows

Performance in Mid-Semester Test	12
Assignment/Project/Seminar	12
Attendance	6

(A) INSTRUCTION FOR THE PAPER SETTER

The question paper will consist of three section A, B & C Section A & B will have four question from the respective section of the syllabus and will carry 12 marks each. Section C will have 11 short answer type questions of 2 mark each which will cover the entire syllabus and will carry 22 marks in all.

(B) INSTRUCTION FOR THE CANDIDATES

Candidates are required to attempt two questions each from the section A & B of the question paper and the entire section C.

Section A

Introduction: Definition, importance and scope of statistics, Limitations of statistics, Concepts of statistical population and a sample - quantitative and qualitative data - collection of primary and secondary data, Sources of data, Techniques of data collection. Designing a questionnaire and a schedule. Sampling: Theoretical basis of sampling, Methods of sampling. Classification and tabulation of data. Diagrammatic and graphical representation of data. Construction of univariate and bivariate frequency distributions.

Univariate data: Concepts of Central Tendency, Mean, Median, Mode and Quartiles, Partition values and Measures of Dispersion, Range, Quartile Deviation, Mean Deviation and Standard Deviation, Box plot. Skewness and kurtosis. Their measures based on quartiles and moments.

Section B

Bivariate data: Definition, Scatter diagram. Principle of least squares.

Correlation Analysis: Introduction, Types of Correlation, Correlation versus causation. Measurement of Correlation: Karl Pearson's Product Moment Coefficient of Correlation, Spearman's Rank Correlation.

Regression Analysis: Introduction, Utility, Method of Least Squares, Regression equations, Coefficient of Regression, Properties of regression coefficients, Standard Error of Estimate.

Probability and Expected Value: Probability: Introduction, random experiments, sample space, events and algebra of events. Approaches to probability - classical, empirical, subjective and axiomatic. Theorems

on probabilities of events, laws of addition and multiplication. Conditional probability, independence of events. Bayes' theorem and its applications. Concepts of Mathematical expectation, random variable and probability distribution.

Text/Reference Books:

1. Fundamentals of Statistics, A.M. Gun, M.K. Gupta and B. Dasgupta, World Press Pvt. Ltd.
2. Applied Statistics and Probability for Engineers, Douglas C. Montgomery and George C. Runger, Wiley.
3. Introduction to Theory of Statistics, A.M. Mood, F.A. Graybill and D.C. Boes, McGraw-Hill.
4. Statistical Methods, S.P. Gupta, Sultan Chand and Sons.