
Note: The syllabus prescribed for the entrance test has been divided into fifteen units. Each unit carries a weightage of four marks. Paper setters are required to set four multiple choice type questions with only one correct or most appropriate answer separately for each unit, giving uniform weight to the whole syllabus contained therein.

UNIT I
Measures of central tendency or location (Arithmetic mean, median, mode, geometric mean and harmonic mean). Requisite conditions for a good average. Relationship between various measures of location and their applications. Merits and demerits of these measures. Dispersion and its relative and absolute measures. Coefficient of variation. Skewness, Kurtosis and their measures including those based on quartiles. Moments, relation between central moments in terms of raw moments and vice-versa. Bivariate Data: Concept of correlation and its types. Scatter diagram method and product moment method of studying correlation.

UNIT II
Properties of a correlation coefficient (limits of the correlation coefficient, effect of change of origin and scale). Concept of rank correlation, derivation of Spearman’s rank correlation coefficient and its limits. Principal of least squares and fitting of first-degree polynomial and parabola. Meaning of regression, derivation of two regression lines. Regression coefficients and their properties.

UNIT III
Important concepts in probability: Definition of probability – classical, relative frequency approach to probability and axiomatic approach of probability. Merits and demerits of these approaches (only general ideas to be given). Random Experiment: Trial, sample space, definition of an event, operation of event, mutually exclusive events. Discrete sample space, properties of probability based on axiomatic approach. Conditional probability, independence of events, Bayes’ theorem and its application.

UNIT IV
Random Variables: Definition of discrete random variables, probability mass function, idea of continuous random variable, probability density function, illustrations of random variables and its properties. Expectation of random variable and its properties. Moment generating functions (mgf), properties and uses.

Recommended by the Departmental Committee of Statistics:

(Dr. Anwar Hassan)  
Prof. & Head

(Dr. Tariq Rashid Jan)  
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(Dr. Sheikh Parvaiz Ahmad)  
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Standard univariate discrete distributions, their applications and properties (mean variance and mgf): Uniform, Binomial, Poisson, Geometric, and Hypergeometric distribution.

UNIT V  
Continuous univariate distributions, their applications and properties (mean, variance, moments and mgf: Uniform, Normal, Exponential, Gamma and Beta Distributions (first-kind).

UNIT VI  
Concept of population, sample, Statistic, parameter and sampling distribution. Standard error of sample mean and sample proportion. Statistical hypothesis and its types. One tail and two tail tests. Types of errors, level of significance and critical region. Procedure for testing of hypothesis. Large sample tests: Tests of significance for testing of a single mean, single proportion, difference of two means and two proportions.

UNIT VII  

UNIT VIII  
Sampling Theory: Need for sampling, Census and sample survey, basic concept in sampling, principles of sample survey, advantages of sample survey over census Sampling and non-Sampling errors. Simple random sampling (SRS) with and without replacement. Merits and demerits of Simple random sampling (SRS). Methods of selecting SRS. Estimation of mean, its Variance and estimate of its variance. Unbiased estimate of population mean square.

UNIT IX  

Recommended by the Departmental Committee of Statistics:

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(Dr. Tariq Rashid Jan)  
Sr. Assistant Professor

(Dr. Sheikh Parvaiz Ahmad)  
Sr. Assistant Professor
UNIT X

UNIT XI

UNIT XII
Index number: Definition and applications of index number. Price relatives and quantity or volume relatives, link and chain relatives. Problems involved in computation of index number, use of averages, simple aggregative and Weighted average methods, Laspey’s, Passche’s and Fisher’s index numbers, time and factor reversal tests of index number. Time series Analysis: Time series – Notation of time series – components of time series – methods of determination of trend by graphical, semi-averages, least squares and moving average methods – Determination of seasonal indices by simple average – rational to trend methods – ratio to moving average.

UNIT XIII

Recommended by the Departmental Committee of Statistics:

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Sr. Assistant Professor

(Dr. Sheikh Parvaiz Ahmad)
Sr. Assistant Professor
UNIT XIV

UNIT XV

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