কলেজ সিলেবাস

বিষয় ঃ পরিসংখ্যান (Statistics)

কোড ঃ ৪১৮

পূর্ণমান ঃ ১০০

Statistics: Definition of statistics. Scope, Nature of statistical data. Attributes and Variables, Primary data and Secondary data, Construction of frequency distribution with its use, Classification and Tabulation, Graphical representation of data.

Measures of central tendency: Various measures of central tendency with their advantage and disadvantage, Criteria of a good measure, Properties of mean with proof, related theorem on measures of central tendency, Various problems, Location of mode and median graphically.

Measures of dispersion: Various measures of dispersion, Compression among the various measures of dispersion, Important theorems and related problems on dispersion, Advantage and disadvantage of various measures.**Moments:** Moments of a distribution, Properties of moments, Use of moments, Relation between row moments and central moments, Related problems on moments, Skewness and kurtosis with their types, Various measures of skewness and kurtosis, Related theorem. **Regression and correlation:** Simple correlation and simple regression, Use of correlation and regression, Difference between correlation and regression, Properties of correlation co-efficient, Properties of regression co-efficient, Rank correlation, Partial correlation co-efficient and Multiple correlation co-efficient. **Probability and random variable:** Meaning of probability, Definition of various terms, Laws of probability, Bayes theorem, Random variable, Probability distribution, Distribution function, Joint probability distribution, Marginal and conditinal distribution, Independence of random variable. **Mathematical expectation:** Meaning of expectation, Properties of expectation, Variance of random variable, Properties of variance, Conditional expectation, Conditional variance, Relation between moments and cumulants, Characteristic function, Related problem on expectation. **Probability distributions:** Binomial distribution. Poisson distribution, Normal distribution, Hypergeometric distribution, Negative binomial distribution Geometric distribution, Uniform distribution, Exponential distribution, Beta distribution, Properties and importance of these distributions. **Sampling Theory:** Concept of sample of population, Meaning and objective of sampling, Defination of related terms, Problems in conducting sample survey, Advantage and disadvantage of census and survey, Sampling error and non sampling error, Types of sampling. Deference between different types of sampling, Simple random sampling, stratified sampling, Systematic sampling, Cluster sampling, Method of drawing random sample, Sampling distribution derivation, Properties and use of f-distribution, t-distribution chi-square distribution, Sample variance s^2. **Design of experiments:** Definition, Important steps of design of experiment. Principles of design of experiment, Analysis of variance, Completely Randomised Design (CRD), Randomised Block Design (RBD), Latin Square Design (LSD), Factorial experiment. **Index Number:** Meaning and use of index number, Problems in construction of index numbers, Methods of constructing index numbers. Test of index numbers, Cost of living index number. **Time Series:** Meaning and use of time series analysis, Different components of I time series, Different methods of calculating trend and seasonal variation. **Interpolation:** Introduction, Derivation of different interpolation formulas, Relation between divided difference and simple difference interpolation with unequal intervals of the arguments. **Test of Significance:** Basic concepts of test of significance, Definition of the related terms, Steps in a test of significance, Confidence interval, Construction of confidence interval, The important test. Normal test, t-test, chi-square test, F-test, Test for the significance of mean, variance. Correlation co-efficient, Regression co-efficient, Propertions, Test of independence in a contingency table.