

GULBARGA UNIVERSITY GULBARGA
SYLLABUS FOR THE OPEN ELECTIVE PAPER AT THE THIRD SEMESTER OF M.SC STATISTICS (CBCS)
OET 3.1: STATISTICAL METHODS

(L:T:P = 4:0:0)

UNIT-I : Measures of Dispersion: Standard deviation, coefficient of variation and their properties.

UNIT-II: Concept of probability, random experiment, sample space, events and their type, empirical definition of probability, addition law, conditional probability, Bayes' rule. Random variables and their types, the concept of population of values of a random variable, parameters probability distribution of a random variable. The probability function, probability mass function and probability density function. Some standard discrete probability distributions-Bernoulli, Binomial and Poisson. Some standard continuous distributions-Normal distribution and its properties. Normal, t, F and chi-square tables. Estimation: The concept of a random sample, statistics and estimators with examples.

UNIT-III: Statistical hypothesis and its types, critical region, test procedure and its types, types of errors, level of significance, optimum test procedure. One sample inference-testing for the mean of a normal distribution with known variance (normal test) and unknown variance (t-test), testing for the variance of a normal population. Two-sample inference-testing for the equality of means of two independent normal populations with a common unknown variance (t-test), paired t-test, testing for the equality of variances of two independent normal populations (F-test). Nonparametric tests-sign test, Wilcoxon signed rank test, U-test. Tests for categorical data-two sample test for categorical data-two sample test for binomial proportions. Chi-square test of independence in contingency tables.

UNIT-IV: Correlation between two variables, examples, scatter diagram, linear correlation and its types, Karl-Pearson's product moment correlation coefficient, testing for the significance of correlation (t-test). Regression-fitting regression lines, method of least squares.

UNIT-V: Principles of experimentation, Analysis of variance, CRD, RBD & LSD and analysis of variance in these designs.

BOOKS FOR REFERENCE

Roster, Bernard: Fundamental of biostatistics, Third Edition, PWS Publishing Company, Boston.

Rangaswamy R: A Text Book of Agricultural Statistics, New Age International Publishers Ltd., Bombay, 1995.

Kleinbaum, D.G., Kupper, L.L., & Moregentern, H. (1982): Epidemiological Research; Principles and Quantitative methods. Belmont, CA:Wadworth.

OEP3.1: Practical Based on OET 3.1

(L: T: P = 0:0:2)

1. Coefficient of Variation
2. Probability
3. Testing for the mean of a normal population (variance known-Normal test, variance unknown-t-test)
4. Testing for the variance of a normal population (Mean known, Mean unknown)
5. Testing for the means of two normal populations (Independent populations-usual t-test, paired t-test)
6. Testing for the variances of two normal populations (F- test)
7. Nonparametric Tests-1 (Sign test, Signed rank test and U-test)
8. Nonparametric Tests-2 (Chi-square test for proportions, Chi-square test for independence)
9. Simple correlation and regression
10. Analysis of variance in CRD
11. Analysis of variance in RBD
12. Analysis of variance in LSD