

To be effective from 2016-2017
REVISED SYLLABUS B.A. SEMESTER-4

STATISTICS ELECTIVE -- 211 (PAPER 3)

APPLIED STATISTICS

1 Testing of Hypothesis: (25%)

Parameter and statistics, Sampling distribution, standard error of a statistics, statistical hypothesis, null hypothesis, Alternative Hypothesis, testing of hypothesis, Test of significance, Level of significance, Degree of freedom, Critical region, Type 1 and type II errors.

2 Large sample test: (25%)

Test for variables: test of significance of mean, Test of significance of difference between two means and two standard deviations. Test for attributes: Test of significance of a proportions of success and Test of significance of the difference between two proportion.

3 Small sample test: (25%)

Chi-square test, t-test and F-test with simple examples.

4 Statistical Quality Control (S.Q.C.) (25%)

Meaning and scope of S.Q.C., Organization of S.Q.C. in an industry unit, Control charts-3 sigma limits and control limits, Control charts for variables x and R charts, their uses and interpretation, Use of theory of runs.
Control charts for attributes: p, np and c charts.

Reference Books:

- (1) S.C.Gupta & V.K.kapoor : Fundamental of applied statistics Sultan Chand & Sons New delhi.
- (2) D.C.Sancheti&V.K.Kapoor: Statistics Theory, Methods & Application Sultan Chand & Sons.
- (3) Grant E.L.:Statistical quality control,McGraw Hill.

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OPERATIONS RESEARCH

1 Linear Programming (25%)

Meaning of linear programming, Assumptions and limitations of linear programming, Use of linear programming. Constrains, Solution, Feasible solution, optimal feasible solutions, Simple examples. Mathematical form of Linear Programming problem. Graphical Method of Solving Linear Programming problem. The meaning of various terms used in Linear Programming like Lattice points, Objective function, Constrains, Solution, Feasible solution, Optimal feasible solutions, Simple examples.

2 Transportation Problem: (25%)

Transportation problem: North- west corner rule and matrix minima methods and Vogle's Approximation method.

3 Assignment problem and Replacement Problem: (25%)

Definition of balanced Assignment problem, Hungarian method of solving an Assignment problem.

Meaning of Replacement Problem, simple examples of Replacement Problem when the units are deteriorating with time and the value of money remains unchanged.

4 Decision Theory: (25%)

Ingredients of decision problems : Act, states of nature of events, pay off Matrix, Different methods of Decision making, Maxi-min principle, Maxi-max principle, Lalplace principle, Horwich principle and Expected monetary value(EMV).

Reference Books:

- (1) J.K.Sharma : O.R. Theory and application" Macmillan India Ltd.
- (2) H.A.Taha: O.R. Theory" Macmillan India Ltd.
- (3) D.C.Sancheti&V.K.Kapoor: Statistics Theory, Methods & Application Sultan Chand & Sons