

VEER NARMAD SOUTH GUJARAT UNIVERSITY

M.Com-II

Semester - III

Paper No : 304

ADVANCED STATISTICS PAPER : 7

(Syllabus effective from Academic Year 2011-12 onwards)

(1) Design of Experiment -1:

Linear model, Analysis of Variance, Basic Principles of design of Experiment.

Analysis of CRD and their application. (25%)

Analysis of RBD and their application. Missing plot technique for only one yield missing. Efficiency of RBD over CRD. (25%)

(2) Sample Survey - 1 :

Sample surveys, Principal steps involved in sample survey, Specific sampling design : Simple Random Sampling, Determination of sample size under S.R.S. with illustrations. (25%)

Specific Sampling Design : Sampling for proportions and percentages, Determination of sample size under sampling for proportion with illustrations. (25%)

BOOKS :

1. Federer, W.T. (1955): Experimental Designs - Theory and Applications, Oxford & TBH Pub.
2. Shah, S.M. (1976): Nidarshan Padhdhatio and Prayogik Abhikalpanao (In Gujarati); University Granth Nirmal Board, Ahmedabad.
3. Montgomery, D.C. (1991): Design and Analysis of Experiments; John Wiley.
4. Cochran, W.G. (1984): Sampling Techniques, Wiley Eastern.
5. Mukhopadhyay, P. (1979): Applied Statistics, Books & Allied Pub., Kolkata.

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ADVANCED STATISTICS PAPER : 8

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1. Game Theory : Competitive games, Two person zero sum game, Minimax and Maximin principle, Fundamental theorem of game theory, Saddle point and the value of the game (based on pure strategies), Mixed strategies. Solution of the game with/without saddle point. Dominance rule, Solution of $m \times 2$ and $2 \times n$ games using graphical method. Algebraic method of solving games. Solution of game by linear programming approach. Solution of game by iterative method. Theory related to 2 - person, non - zero sum games. Limitations of game theory. Significance of game theory. (40 %)

2. PERT / CPM : Introduction, Historical development of PERT/CPM. Techniques, application of PERT/CPM techniques, Basic steps. Network diagram representation, rules of drawing network diagram, time estimates and critical path in network analysis, PERT technique, updating resources allocation, limitations of network techniques, project monitoring. (40 %)

3. SIMULATION : Introduction, Simulation Defined, Reasons for using simulation, Methodology for simulation, Advantages and Drawbacks of simulation, Managements Application. (20 %)

BOOKS :

1. Kanti Swarup, P.K.Gupta and Man Mohan (1995) Operations Research: Sultan Chand & Sons; New Delhi.
2. Sharma S.D.(2005-06) :Operations Research: Kedar Nath & sons, Meerut.
3. V.K.Kapoor (2003): Operations Research Techniques for management sultan Chand & sons, New Delhi.
4. Sharma, J.K. (1998): Operations Research; Mac Milan Pub., New Delhi.

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Paper No: 306

ADVANCED STATISTICS PAPER : 9

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(1) LINEAR PROGRAMMING AND ITS APPLICATIONS :-

Meaning, assumptions, uses and limitations of linear programming. Mathematical formulation of linear programming problem (L.P.P). Simplex method, Big-M method, Two phase method and its applications. Degeneracy problem. (50%)

(2) Inventory Models : EOQ models with uniform rate of demand and shortages not allowed, deterministic models with shortages, instantaneous production, finite rate of replacement model, probabilistic demand models, single period models with uniform demand, ABC analysis of inventory.

(50%)

BOOKS :

1. Kanti Swarup, P.K.Gupta and Man Mohan (1995) Operations Research: Sultan Chand & Sons; New Delhi.
2. Sharma S.D.(2005-06) :Operations Research: Kedar Nath & sons, Meerut.
3. V.K.Kapoor (2003): Operations Research Techniques for management sultan Chand & sons, New Delhi.
4. Sharma, J.K. (1998): Operations Research; Mac Milan Pub., New Delhi.

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Semester - IV

Paper No : 404

ADVANCED STATISTICS PAPER : 10

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(1) Design of Experiment -2:

The analysis of LSD and their application, missing plot technique only for one yield missing. Efficiency of LSD over CRD and RBD. (25%)

2^2 and 2^3 factorial design with analysis and application. Concept of total and partial confounding with illustration. (25%)

(2) Sample Survey - 2 :

Specific Sampling Design : Stratified Random sampling. Determination of sample size under stratified random sampling. Two stage sampling. with illustration. (25%)

Specific Sampling Design : Systematic Sampling . Two phase sampling and its uses in ratio and regression estimation, Use of auxiliary information at estimation stage. (25%)

BOOKS :

1. Federer, W.T. (1955): Experimental Designs - Theory and Applications, Oxford & TBH Pub.
2. Shah, S.M. (1976): Nidarshan Padhdhatio and Prayogik Abhikalpanao (In Gujarati); University Granth Nirmal Board, Ahmedabad.
3. Montgomery, D.C. (1991): Design and Analysis of Experiments; John Wiley.
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5. Mukhopadhyay, P. (1979): Applied Statistics, Books & Allied Pub., Kolkata.

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Semester - IV

Paper No : 405

ADVANCED STATISTICS PAPER : 11

(Syllabus effective from Academic Year 2011-12 onwards)

1. The Sequencing problems :

Introduction, General Assumptions, Basic Terminology, Processing n-job through two machines, Processing n-jobs through three machines, Processing two jobs through m-machines, Processing n-jobs through m-machines. (20 %)

2. Statistical Quality Control :

Concept of quality and statistical quality control. Benefits of statistical quality control, Sampling inspection, Acceptance sampling plans for attributes, single and double sampling plans for attributes. Sequential sampling plans for attributes, Concept of Total Quality Management (TQM). Introduction to just in time (JIT) inventory, Quality circles production. (40 %)

3. Decision Theory : Introduction, few management applications, No data decision problem [H,A,L], Statistics decision problem [H, D, R], Non randomized decision rules, risk function, better decision rule, admissible decision rule, Structure of Decision - making problem. Types of decision - making Environment, Decision making under certainty, Decision making under risk, decision making under uncertainty.[**maximin and minimax** decision rules]. Prior information, Posterior probabilities and Bayes decision rule. Decision making using utility theory. (40 %)

BOOKS :

1. Sharma S.D.(2005-06) Operations Research: Kedar Nath & sons, Meerut.
2. V.K.Kapoor (2003): Operations Research Techniques for management sultan Chand & sons, New Delhi.
3. Anand Sharma (2006) : Statistics for management : Himalaya Publishing house, Mumbai.
4. Moshe B Levy H (1984) : Statistical decision applications in Business and Economics : mc graw hills.
5. Grant E.L.(1964) : Statistical quality control : mc graw hills.

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Semester - IV

Paper No : 406

ADVANCED STATISTICS PAPER : 12

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LINEAR PROGRAMMING:-

Duality in linear programming problem, concept and application, advantage of duality. Statement of duality theorem and its applications. Revised simplex method. (50%)

(2) Queuing Theory:

Classification of queues, Poisson process and exponential distⁿ, transient and steady states, Poisson queues with single service channel, Finite and infinite capacity and its characteristics. (50%)

BOOKS:

1. Kanti Swarup, P.K.Gupta and Manmohan(1995): "Operations Research", Sultan Chand & Sons; New Delhi.
2. Sharma S.D.(1998): " Operations Research" ; Kedarnath & Sons, Meerut.
3. Sharma J.K.(1998): " Operations Research" ; Macmilan Publication, New Delhi.
4. Gupta R.K.(2000): " Operations Research" ; Krishna Prakashan Media (P) Ltd, Meerut.
5. Jit S.Chandan, Mahendra P Kawatra, ki ho kim(1994):: essentials of linear programming; Vikas Publication House Pvt Ltd, New Delhi.
6. Kapoor V.K.(1994) " Operations Research" ; Sultan Chand & Sons, New Delhi.