

Solapur University, Solapur.

Code -23

Semester Pattern Syllabus
M. Com. Part-I
Paper I
ADVANCED STATISTICS
(Statistical Models For Business Decisions)
(w. e. f. June 2010)

Semester – I

Periods

Unit-1: Matrix Algebra :-

(15)

Definition of a matrix, types of matrices, addition, subtraction, multiplication of matrices, inverse of matrix. Rank of Matrix, Determinant. Finding value of determinant. Solving the linear homogeneous and non-homogeneous system of equations by matrix method. Cramer's rule (for not more than three variables)

Unit-2: Introduction to Operations Research (O.R.):

(15)

Origin, development definitions and applications of O.R. phases of O.R. Mathematical formulation of L.P.P., Solution by Graphical Method.

Unit-3: Linear Programming Problems :

(15)

Definitions of slack surplus variables. L.P.P. in general form, canonical form and Standard form, definitions of solution, feasible solution, basic feasible solution, optimal solution, degenerate and non-degenerate solution. Simplex Algorithm and example of '<' type of constraints.

Unit-4: Assignment Problem :

(15)

Definition of A .P. Mathematical formulation of A.P., Reduction Theorem, Assignment algorithm, Unbalanced Assignment Problems, examples on it.

Semester - II

Unit-5: Transportation Problem (T.P.) : (20)

Definition of T.P. mathematical formulation, methods of finding IBFS, Testing IBFS for the Optimality, Unbalanced T.P. Relation between Assignment problem and Transportation problem.

Unit-6: Project Scheduling by CPM/PERT. (20)

C P M - Definitions of (i) Event (ii) Activity (iii) Critical Path (iv) Critical Activity (v) Network. Construction of Network, Calculations of ES, LS, EF, LF and project duration. PERT : Definitions of (i) Pessimistic (ii) Most likely (iii) Optimistic time estimates. Calculations of expected time duration and s.d. of it.

Unit-7: Replacement: (20)

Introduction of replacement problem, types of replacement problems, replacement policy for items whose maintenance cost increases with time when money value is fixed and money value changes with constant rate, worked examples, replacement of items that fail completely.

Reference Books :

- 1 Shantinayakan : Text Book of Matrices
- 2 S.D. Sharma : Text Book of Linear Programming Problem
- 3 S.D.Sharma : Operations Research
- 4 R.K. Gupta : Text Book of Linear Programming
- 5 Kantiswarup, Gupta Man-Mohan : Operations Research
- 6 Goel And Mithal : Operations Research



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Nature of Question Paper For Semester Pattern

• Faculty of Commerce (B.Com., M.Com.)

Model Question Paper

(w.e.f. June 2010)

Time: - 2 hrs.

Total Marks-50

- | | | |
|-------------|--------------------------------------------------------------------------|-----------|
| Q. 1 | Multiple choice questions
(four alternatives should be given) | 10 |
| | 1 ----- | |
| | (a) (b) (c) (d) | |
| | 2 | |
| | 3 | |
| | 4 | |
| | 5 | |
| | 6 | |
| | 7 | |
| | 8 | |
| | 9 | |
| | 10 | |
| Q. 2 | Answer the following
(Short note/Short problem/Short answer) | |
| | (A) | 05 |
| | (B) | 05 |
| Q. 3 | Answer the following
(Short note/Short answer/Short problem) | |
| | (A) | 05 |
| | (B) | 05 |
| Q. 4 | Answer any one (Long answer/Problem) | 10 |
| | i) | |
| | ii) | |
| Q. 5 | Answer any one (Long answer/Problem) | 10 |
| | i) | |
| | ii) | |

1. Structure of the courses :-

- A) Each paper of every subject for Arts, Social Sciences & Commerce Faculty shall be of 50 marks as resolved by the respective faculties and Academic Council.
- B) For Science Faculty subjects each paper shall be of 50 marks and practical for every subject shall be of 50 Marks as resolved in the faculty and Academic Council.
- C) For B. Pharmacy also the paper shall be of 50 marks for University examination. Internal marks will be given in the form of grades.
- D) For courses which were in semester pattern will have their original distribution already of marks for each paper.
- E) For the faculties of Education, Law, Engineering the course structure shall be as per the resolutions of the respective faculties and Academic Council.

2. Nature of question paper:

A) Nature of questions.

"20% Marks - objectives question" **(One mark each and multiple choice questions)**

"40% Marks - Short notes / Short answer type questions / Short Mathematical type questions/ Problems. **(2 to 5 Marks each)**

"40% Marks - Descriptive type questions / Long Mathematical type questions / Problems. **(6 to 10 Marks each)**

- B) Objective type question will be of multiple choice (MCQ) with four alternatives. This answer book will be collected in first 15 minutes for 10 marks and in first 30 minutes for 20 marks.
Each objective question will carry one mark **each**.
 - C) Questions on any topic may be set in any type of question. All questions should be set in such a way that there should be permutation and combination of questions on all topics from the syllabus. As far as possible it should cover entire syllabus.
 - D) There will be only five questions in the question paper. All questions will be compulsory. There will be internal option **(40%)** and not overall option.
for questions 2 to 5.
- 3. Practical Examination for B. Sc. I. will be conducted at the end of second semester.
 - 4. Examination fees for semester Examination will be decided in the Board of Examinations.

The structures of all courses in all Faculties were approved and placed before the Academic Council. After considered deliberations and discussion it was decided not to convene a meeting of the Academic Council for the same matter as there is no deviation from any decision taken by Faculties and Academic Council. Nature of Question Paper approved by Hon. Vice Chancellor on behalf of the Academic Council.