

**SEMESTER I**  
**I AC I - NUMERICAL AND STATISTICAL METHODS**

**Internal Marks : 25**

**External Marks: 75**

**Total Marks : 100**

**Subject Code : UKA1**

**Exam Hrs : 3**

**UNIT I**

Algebraic & Transcendental equations : Bisection Method , Newton Raphson Method, Iteration method - Finite differences –Forward , Backward differences – Newton's forward & backward difference interpolation formulae. Lagrange's interpolating polynomial.

**UNIT II**

Numerical differentiation - Numerical Integration using Trapezoidal rule and Simpson's first & second rules (proof not needed ) - Solutions to Linear Systems – Gaussian Elimination Method – Jacobi & Gauss Siedal iterative methods – Theory and problems

**UNIT III**

Numerical solution of ODE : Solution by Taylor Series Method , Euler's Method, Runge- Kutta 2nd order method- Adam's Predictor Corrector Method and Milne's Predictor Corrector Methods

**UNIT IV**

Mean Median, Mode, Standard Deviation -Expectation –Variance and covariance – Correlation and Regression –Properties of Simple Correlation and regression coefficients– Simple Numerical Problems only.

**UNIT V**

Distributions: Discrete & Continuous distributions: Binomial, Poisson, Normal Distributions- Properties of normal distributions –Relation between Binomials, Poisson, Normal distributions

**TEXT BOOK(S)**

- [1] S.S.Sastry, Numerical Analysis (Unit 1 , 2 , 3 )
- [2] Gupta.S.C & Kapoor,V.K, Fundamentals of Mathematical Statistics, Sultan Chand & sons, New Delhi -1994. (Units 4 & 5)

**REFERENCE(S)**

- [1] M.K. Jain, S.R.K. Iyengar and R.K. Jain, Numerical Methods for Scientific and Engineering Computation, New Age International Private Limited, 1999.
- [2] C.E. Froberg, Introduction to Numerical Analysis, II Edn., Addison Wesley, 1979.

**SEMESTER II**  
**I AC II - ORGANIZATIONAL BEHAVIOUR**

**Internal Marks : 25**

**External Marks: 75**

**Total Marks : 100**

**Subject Code : UKA2**

**Exam Hrs : 3**

**OBJECTIVE:**

To enable the students to understand the concepts of individual and group behavior in an organization.

**UNIT – I**

Nature of Organization: Concept of Organization –Features of Organization – Organization Goals (Meaning) – Individual Goals (Meaning) – Nature of Organizational Behavior: OB and Similar Fields of Studies – Nature of OB – Contributing Disciplines to Organizational Behavior – Nature of Human Behavior –Caused Nature of Behavior – Process of Behavior.

**UNIT –II**

Perception: Concept of Perception – Perception and Sensation –Perception Process – Managerial Implication of Perception – Developing Perceptual Skills. Learning: Components of Learning Process.– Learning Theory – Reinforcement Principle.Personality Concept – PersonalityTheories –Determinants of Personality.

**UNIT –III**

Attitude:Concept of Attitudes – Features – Motivation: Definition of Motivation – Theories of Motivation – Maslow’s Need Hierarchy – Two-Factor Theory – Theory X and Y.Dynamicsof Stress – Concept and Features of Stress – Causes of Stress – Effects of Stress – Copying Strategies of Stress.

## **UNIT –IV**

Group Dynamics: Concept of Group Dynamics – Concepts and Features of Group – Types of Groups – Formal and Informal Groups – Features and Distinction. Leadership: Meaning – Approaches – Styles.

## **UNIT – V**

Communication: Concept – Communication Process – Direction of Communication –Barriers in Communication – Making Communication Effective. Organizational Change and Development: Reasons for Organization Change – Resistance to Change – Overcoming Resistance to Change – Organizational Development – Need for OD – Steps in OD.

## **TEXT BOOK:**

L.M.Prasad, *Organizational Behavior*, Sultan Chan and Sons, 1998

UNIT I: Chapter 1, 3

UNIT II: Chapter 4 – 6

UNIT III: Chapter 7,9,21

UNIT IV: Chapter 13, 16

UNIT V: Chapter 17, 24, 25

## **REFERENCE BOOK**

Fred Luthans, *Organizational Behavior*, Tata McGraw Hill Education (P) Limited  
12th edition, 2013.

## SEMESTER II

### I AC III - MATHEMATICAL FOUNDATION FOR COMPUTER SCIENCE

**Internal Marks: 25**

**External Marks: 75**

**Total Marks : 100**

**Subject Code : UKA3**

**Exams Hrs : 3**

#### UNIT I

**Sets, Relations and Functions:** Definition of set, intersection, union and compliments. Principal of inclusion and exclusion, De Morgan's laws, cardinality difference, symmetric difference. Cartesian product, relations.

#### UNIT II

**Matrix Theory: Review** of fundamentals, equivalent matrices, elementary row (column) operations, and rank of a matrix by reducing it to the normal form, rank of a matrix by reducing it to echelon form.

**Mathematical Logic:** Connectives, Negation, Conjunction, Disjunction, conditional, bi-conditional, statement formulas, Tautology and contradiction, Equivalence formulae

#### UNIT III

**Graph Theory:** Definition of a Graph, Finite and Infinite Graphs, Incidence and Degree of a vertex, Null Graph, Sub graphs, Walks, Paths, Circuits, Connected, Disconnected graphs and Components, Euler Graph, Hamiltonian Path and Hamiltonian Circuits.

#### UNIT IV

**Trees and Matrix Representation:** Properties of Trees, Distance and Centres in a Tree, Rooted and Binary Trees, Spanning Trees and Fundamental Circuits. Cutset, properties of a Cutset.

Matrix Representation of graphs: Incidence matrix, Circuit matrix, Fundamental Circuit matrix, Cutset matrix, Path matrix, Adjacency matrix

#### UNIT V

**Planar and Dual Graphs:** Planar Graphs, Kurtowski's two Graphs, Different Representations of a Planar Graph, Detection of Planarity.

**Directed Graphs:** Definition, Some types of Digraphs, Digraphs and Binary relations, Directed paths and Connectedness, Euler Digraphs, Trees with directed edges, Fundamental Circuits in Digraphs, Adjacency Matrix of a Digraph.

### **TEXT BOOKS**

Discrete mathematical Structures by J.P. Trembley and R. Manohar, TMH Publications.

### **REFERENCE BOOK**

1. . Graph theory – Narasingh Deo
2. Elements of Discrete mathematics by C.L.Liu

## SEMESTER III

### II AC I - OPERATIONS RESEARCH

**Internal Marks : 25**

**External Marks : 75**

**Total Marks : 100**

**Subject Code : UKA4**

**Exam Hrs : 3**

#### UNIT I

Operations Research: Introduction - Basics of OR – OR & decision making – Role of Computers in OR - Linear programming formulations & graphical solution of two Variables – Canonical & standard forms of LPP

#### UNIT II

Simplex Method : Simplex Method for  $<$  ,  $=$  ,  $>$  constraints – Charne's method of Penalties– Two phase Simplex method.

#### UNIT III

Transportation problem: Transportation algorithm –Degeneracy algorithm – Degeneracy in Transportation Problem , Unbalanced transportation problem- Assignment algorithm –Unbalanced Assignment problem .

#### UNIT IV

Sequencing problem: Processing of n jobs through two machines – Processing of n jobs through 3 machines – processing of two jobs through m machines.

#### UNIT V

Networks: Network – Fulkerson's rule- measure of activity –PERT computation – CPM computation. - Resource scheduling.

#### TEXT BOOK:

Manmohan & Gupta, Operations Research, Sultan Chand Publishers, New Delhi

#### REFERENCE:

Prem Kumar Gupta and D.S. Hira, Operations Research: An Introduction, S.

Chand and Co., Ltd. New Delhi,

Hamdy A. Taha, Operations Research (7th Edn.), McMillan Publishing Company, New Delhi, 1982

**SEMESTER IV**  
**II AC II - ELEMENTS OF ACCOUNTING**

**Internal Marks : 25**  
**External Marks : 75**  
**Total Marks : 100**  
**Objectives:**

**Subject Code : UKA5**  
**Exam Hrs : 3**

To provide the basic knowledge of the financial accounting including double entry book keeping. Preparation of journal subsidiary book ledger trail balance and balance sheet.

**UNIT I**

Meaning of Accounting and Book keeping - Objectives – Accounting Concepts and Conventions – Principles of Double Entry – Kinds of Account – Journal and Ledger Accounts.

**UNIT II**

Subsidiary Books – Purchases Book, Sales Book, Purchase Returns Book, Sales Returns, Bills Receivable Book, Bills Payable Book, Petty Cash Book and Journal Proper – Cash Book – Single Column only.

**UNIT III**

Trail Balance – Rectification of Errors – Suspense Account – Bank Reconciliation Statement

**UNIT IV**

Final Accounts – Trading Account, Profit and Loss Account , Balance Sheet – Opening, Adjusting and Closing Entries.

**UNIT V**

Depreciation and Provisions - Methods of Depreciation - Straight Line Method and Diminishing Balance Method .

**TEXT BOOK:**

1. N.Vinayakam, P.L. Mani, K.L. Nagarajan, Principles of Accountancy, EURASIA Publishing House (PVT) Ltd., New Delhi, Revised Edition, 2002.

**REFERENCES:**

1. Advanced Accountancy by Shukla and Grewal
2. Advanced Accountancy by R.L. Gupta and Radhaswamy



**SEMESTER IV**  
**II AC III - TALLY LAB**

**Internal Marks : 40**

**External Marks: 60**

**Total Marks : 100**

**Subject Code : UKA6Y**

**Exam Hrs : 3**

1. Architecture and customization of Tally
2. Configuration of Tally
3. Tally Screens and Menus
4. Creation of new company and groups
5. Preparation of voucher entries.
  - a. Payment voucher
  - b. Receipt voucher
  - c. Sales voucher
  - d. Purchase voucher
  - e. Contra voucher
  - f. Journal voucher
6. Ledger Creation
7. Preparation of Trail balance
8. Preparation of Profit and loss statement.
9. Preparation of Balance Sheet.
10. Preparation of Bank Reconciliation Statement