

BACHELOR OF COMPUTER APPLICATIONS
SCHEME OF EXAMINATION – SECOND YEAR(W.E.F. 2014-15)

Paper No.	Title of Paper	External marks	Internal Assessment	Maximum Marks	Pass marks	Exam Duration
Semester – III						
BCA-231	Object Oriented Programming Using C++	80	20	100	35	3hrs
BCA-232	Data Structures	80	20	100	35	3hrs
BCA-233	Computer Architecture	80	20	100	35	3hrs
BCA-234	Software Engineering	80	20	100	35	3hrs
BCA-235	Fundamentals of Data Base Systems	80	20	100	35	3hrs
BCA-236	Computer Oriented Numerical Methods	80	20	100	35	3hrs
Semester – IV						
BCA-241	Advanced Data Structures	80	20	100	35	3hrs
BCA-242	Advanced Programming using C++	80	20	100	35	3hrs
BCA-243	E-Commerce	80	20	100	35	3hrs
BCA-244	Relational Data Base Management System	80	20	100	35	3hrs
BCA-245	Computer Oriented Statistical Methods	80	20	100	35	3hrs
BCA-246	Management Information System	80	20	100	35	3hrs
BCA-251	Lab – I Based on BCA-231 & BCA- 242	100			35	3hrs
BCA-252	Lab – II Based on BCA-232 & BCA- 241	100			35	3hrs

INTERNAL ASSESSMENT WILL BE BASED ON THE FOLLOWING CRITERIA:

- (I) TWO HANDWRITTEN ASSIGNMENTS : 10 MARKS
 (IST ASSIGNMENT AFTER ONE MONTH & IIND ASSIGNMENT AFTER TWO MONTHS)
 (II) ONE CLASS TEST : 5 MARKS
 (ONE PERIOD DURATION)
 (III) ATTENDANCE : 5 MARKS

MARKS FOR ATTENDANCE WILL BE GIVEN AS UNDER:

1. 91% ONWARDS : 5 MARKS
2. 81% TO 90% : 4 MARKS
3. 75% TO 80% : 3 MARKS
4. 70% TO 75% : 2 MARKS*
5. 65% TO 70% : 1 MARK*

* FOR STUDENTS ENGAGED IN CO-CURRICULAR ACTIVITIES OF THE COLLEGES ONLY/AUTHENTICATED MEDICAL GROUNDS DULY APPROVED BY THE CONCERNED PRINCIPAL.

NOTE: 1. PRACTICAL EXAM WILL BE CONDUCTED ANNUALLY IN TWO SESSIONS. HOWEVER THE WORKLOAD WILL BE DISTRIBUTED IN BOTH THE SEMESTERS ACCORDING TO THE RELEVANT PAPERS.

BCA - 231 OBJECT ORIENTED PROGRAMMING USING 'C++'

Maximum Marks: 100

80

Minimum Pass Marks: 35

20

Time: 3 hours

External:

Internal:

Note: Examiner will be required to set Nine Questions in all. First Question will be compulsory, consisting of objective type/short-answer type questions covering the entire syllabus. In addition to that eight more questions will be set, two questions from each Unit. A candidate will be required to answer five questions in all, selecting one question from each unit in addition to compulsory Question No. 1. All questions will carry equal marks.

UNIT - I

Object oriented Programming: Object-Oriented programming features and benefits, Object-Oriented features of C++, Class and Objects, Data Hiding & Encapsulation, Structures, Data members and Member functions, Scope resolution operator and its significance, Static Data Members, Static member functions, Nested and Local Class, Accessing Members of Class and Structure.

UNIT - II

Constructor, Initialization using constructor, types of constructor- Default, Parameterized & Copy Constructors, Constructor overloading, Default Values to Parameters, Destructors, Console I/O: Hierarchy of Console Stream Classes, Unformatted and Formatted I/O Operations.

UNIT - III

Manipulators, Friend Function, Friend Class, Arrays, Array of Objects, Passing and Returning Objects to Functions, String Handling in C++, Dynamic Memory Management: Pointers, new and delete Operator, Array of Pointers to Objects, this Pointer, Passing Parameters to Functions by Reference & pointers.

UNIT - IV

Polymorphism: Operators in C++, Precedence and Associativity Rules, Operator Overloading, Unary & Binary Operators Overloading, Function Overloading, Inline Functions

TEXT BOOKS:

1. Herbert Schildt, C++, The Complete Reference, Tata McGraw-Hill
2. Robert Lafore, Object Oriented Programming in C++, SAMS Publishing

REFERENCE BOOKS:

1. Bjarne Stroustrup, The C++ Programming Language, Pearson Education
2. Balaguruswami, E., Object Oriented Programming In C++, Tata McGraw-Hill.

BCA - 232 DATA STRUCTURES

Maximum Marks: 100

80

Minimum Pass Marks: 35

20

Time: 3 hours

External:

Internal:

Note: Examiner will be required to set Nine Questions in all. First Question will be compulsory, consisting of objective type/short-answer type questions covering the entire syllabus. In addition to that eight more questions will be set, two questions from each Unit. A candidate will be required to answer five questions in all, selecting one question from each unit in addition to compulsory Question No. 1. All questions will carry equal marks.

UNIT - I

Introduction: Elementary data organization, Data Structure definition, Data type vs. data structure, Categories of data structures, Data structure operations, Applications of data structures, Algorithms complexity and time-space tradeoff, Big-O notation.

Strings: Introduction, String strings, String operations, Pattern matching algorithms.

UNIT - II

Arrays: Introduction, Linear arrays, Representation of linear array in memory, Traversal, Insertions, Deletion in an array, Multidimensional arrays, Parallel arrays, Sparse matrices.

Linked List: Introduction, Array vs. linked list, Representation of linked lists in memory, Traversal, Insertion, Deletion, Searching in a linked list, Header linked list, Circular linked list, Two-way linked list, Garbage collection, Applications of linked lists. Algorithms for Insertion, deletion in array, Single linked list

UNIT - III

Stack: Introduction, Array and linked representation of stacks, Operations on stacks, Applications of stacks: Polish notation, Recursion.

Queues: Introduction, Array and linked representation of queues, Operations on queues, Deques, Priority Queues, Applications of queues.

UNIT - IV

Tree: Introduction, Definition, Representing Binary tree in memory, Traversing binary trees, Traversal algorithms using stacks and using recursion.

Graph: Introduction, Graph theory terminology, Sequential and linked representation of graphs.

TEXT BOOKS

1. Seymour Lipschutz, "Data Structure", Tata-McGraw-Hill

2. Horowitz, Sahni & Anderson-Freed, "Fundamentals of Data Structures in C", University Press

REFERENCE BOOKS:

1. Trembley, J.P. And Sorenson P.G., "An Introduction to Data Structures With Applications", Mcgrraw- Hill International Student Edition, New York.
2. Mark Allen Weiss Data Structures and Algorithm Analysis In C, Addison- Wesley, (An Imprint Of Pearson Education), Mexico City.
3. Yedidyan Langsam, Moshe J. Augenstein, and Aaron M. Tenenbaum, "Data Structures Using C", Prentice- Hall of India Pvt. Ltd., New Delhi.

BCA - 233 COMPUTER ARCHITECTURE

Maximum Marks: 100

External:

80

Minimum Pass Marks: 35

Internal:

20

Time: 3 hours

Note: Examiner will be required to set Nine Questions in all. First Question will be compulsory, consisting of objective type/short-answer type questions covering the entire syllabus. In addition to that eight more questions will be set, two questions from each Unit. A candidate will be required to answer five questions in all, selecting one question from each unit in addition to compulsory Question No. 1. All questions will carry equal marks.

UNIT -I

Basic Computer Organisation and Design: Instruction Codes, Computer registers, Computer Instructions, Timing and Control, Instruction Cycle, Memory reference instructions, Input-Output and Interrupt, Design of Basic computer, Design of accumulator logic

UNIT -II

Register Transfer and Microoperations: Register Transfer Language (RTL), register transfer, Bus and Memory Transfers, Arithmetic Microoperations, Logic Microoperations, Shift Microoperations, Arithmetic Logic Shift Unit, Microprogrammed Control: Control memory; address sequencing, microprogram sequencer, Design of Control Unit

UNIT -III

Central Processing Unit: General registers Organization, Stack Organization, Instruction formats, Addressing Modes, Data Transfer and Manipulation, Program Control, Program Interrupt, RISC, CISC.

UNIT -IV

Memory Organization: Memory hierarchy, Auxiliary Memory, Associative Memory, Interleaved memory, Cache memory, Virtual Memory, Memory Management Hardware, Input Output Organization : Peripheral devices , Input-Output Interface, Asynchronous data transfer, Modes of Transfer, Priority Interrupt, Direct Memory Access(DMA),Input-Output Processor(IOP).

TEXT BOOKS

1. Computer System Architecture By. Moris Mano, Pearson Education
2. Computer Architecture and Organization By J.P. Hayes, Tata McGraw Hill

REFERENCE BOOKS:

1. W. Stallings, Computer Organisation and Architecture, 4th Edition, Pearson Education
2. Harry, Jordan, Computer Systems Design & Architecture, Edition, Addison Wesley
3. J.D. Carpinelli, Computer Systems Organization & Architecture, Addison Wesley.
4. P.V.S. Rao, "Computer System Architecture", PHI, 2009

BCA - 234 SOFTWARE ENGINEERING

Maximum Marks: 100

External:

80

Minimum Pass Marks: 35

Internal:

20

Time: 3 hours

Note: Examiner will be required to set Nine Questions in all. First Question will be compulsory, consisting of objective type/short-answer type questions covering the entire syllabus. In addition to that eight more questions will be set, two questions from each Unit. A candidate will be required to answer five questions in all, selecting one question from each unit in addition to compulsory Question No. 1. All questions will carry equal marks.

UNIT - I

Introduction: Program vs. Software, Software Engineering, Programming paradigms, Software Crisis - problem and causes, Phases in Software development: Requirement Analysis, Software Design, Coding, Testing, Maintenance, Software Development Process Models: Waterfall, Prototype, Evolutionary and Spiral models, Role of Metrics.

UNIT - II

Feasibility Study, Software Requirement Analysis and Specifications: SRS, Need for SRS, Characteristics of an SRS, Components of an SRS, Problem Analysis, Information gathering tools, Organizing and structuring information, Requirement specification, validation and Verification.. SCM

UNIT - III

Structured Analysis and Tools: Data Flow Diagram, Data Dictionary, Decision table, Decision tress, Structured English, Entity-Relationship diagrams, Cohesion and Coupling.

Gantt chart, PERT Chart, Software Maintenance: Type of maintenance, Management of Maintenance, Maintenance Process, maintenance characteristics.

UNIT - IV

Software Project Planning: Cost estimation: COCOMO model, Project scheduling, Staffing and personnel planning, team structure, Software configuration management, Quality assurance plans, Project monitoring plans, Risk Management. Software testing strategies: unit testing, integration testing, Validation testing, System testing, Alpha and Beta testing.

TEXT BOOKS:

1. Pressman R. S., "Software Engineering - A Practitioner's Approach", Tata McGraw Hill.
2. Jalote P., "An Integrated approach to Software Engineering", Narosa.

REFERENCE BOOKS:

1. Sommerville, "Software Engineering", Addison Wesley.

2. Fairley R., "Software Engineering Concepts", Tata McGraw Hill.
3. James Peter, W Pedrycz, "Software Engineering", John Wiley & Sons.

BCA - 235 FUNDAMENTALS OF DATABASE SYSTEM

Maximum Marks: 100

External:

80

Minimum Pass Marks: 35

Internal:

20

Time: 3 hours

Note: Examiner will be required to set Nine Questions in all. First Question will be compulsory, consisting of objective type/short-answer type questions covering the entire syllabus. In addition to that eight more questions will be set, two questions from each Unit. A candidate will be required to answer five questions in all, selecting one question from each unit in addition to compulsory Question No. 1. All questions will carry equal marks.

UNIT - I

Basic Concepts - Data, Information, Records and files. Traditional file - based Systems-File Based Approach-Limitations of File Based Approach, Database Approach-Characteristics of Database Approach, Database Management System (DBMS), Components of DBMS Environment, DBMS Functions and Components, Advantages and Disadvantages of DBMS, Roles in the Database Environment - Data and Database Administrator, Database Designers, Applications Developers and Users.

UNIT - II

Database System Architecture - Three Levels of Architecture, External, Conceptual and Internal Levels, Schemas, Mappings and Instances, Data Independence - Logical and Physical Data Independence, Classification of Database Management System, Centralized and Client Server architecture to DBMS.

UNIT - III

Data Models: Records- based Data Models, Object-based Data Models, Physical Data Models and Conceptual Modeling, Entity-Relationship Model - Entity Types, Entity Sets, Attributes Relationship Types, Relationship Instances and ER Diagrams.

UNIT - IV

Relational Data Model:-Brief History, Terminology in Relational Data Structure, Relations, Properties of Relations, Keys, Domains, Integrity Constraints over Relations, Base Tables and Views, Basic Concepts of Hierarchical and Network Data Model.

TEXT BOOKS:

1. Elmasri & Navathe, "Fundamentals of Database Systems", 5th edition, Pearson Education.

REFERENCE BOOKS:

1. Thomas Connolly Carolyn Begg, "Database Systems", 3/e, Pearson Education
2. C. J. Date, "An Introduction to Database Systems", 8th edition, Addison Wesley N. Delhi.

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BCA- 236 COMPUTER-ORIENTED NUMERICAL METHODS

Maximum Marks: 100

Time: 3

hours

Minimum Pass Marks: 35

Note: Examiner will be required to set Nine Questions in all. First Question will be compulsory, consisting of objective type/short-answer type questions covering the entire syllabus. In addition to that eight more questions will be set, two questions from each Unit. A candidate will be required to answer five questions in all, selecting one question from each unit in addition to compulsory Question No. 1. All questions will carry equal marks.

UNIT-I

Computer Arithmetic: Floating-point representation of numbers, arithmetic operations with normalized floating-point numbers and their consequences, significant figures.

Error in number representation-inherent error, truncation, absolute, relative, percentage and round-off error.

Iterative Methods: Bisection, False position, Newton-Raphson method. Iteration method, discussion of convergence, Bairstow's method.

UNIT-II

Solution of simultaneous linear equations and ordinary differential equations: Gauss-Elimination methods, pivoting, Ill-conditioned equations, refinement of solution. Gauss-Seidal iterative method, Euler method, Euler modified method, Taylor-series method, Runge-Kutta methods, Predictor-Corrector methods.

UNIT-III

Interpolation and Approximation:

Polynomial interpolation: Newton, Lagranges, Difference tables, Approximation of functions by Taylor Series.

Chebyshev polynomial: First kind, Second kind and their relations, Orthogonal properties.

UNIT-IV

Numerical Differentiation and integration: Differentiation formulae based on polynomial fit, pitfalls in differentiation, Trapezoidal & Simpson Rules, Gaussian Quadrature.

REFERENCE BOOKS

1. V. Rajaraman, Computer Oriented Numerical Methods, Prentice Hall, India.
2. S. S. Sastry, Introductory Methods of Numerical Analysis.
3. M. K. Jain, S.R.K. Iyengar & R. K. Jain, Numerical Methods for Scientific and Engineering Computation.
4. H. C. Saxena, Finite Differences and Numerical Analysis.

BCA - 241 ADVANCED DATA STRUCTURE

Maximum Marks: 100

80

Minimum Pass Marks: 35

20

Time: 3 hours

External:

Internal:

Note: Examiner will be required to set Nine Questions in all. First Question will be compulsory, consisting of objective type/short-answer type questions covering the entire syllabus. In addition to that eight more questions will be set, two questions from each Unit. A candidate will be required to answer five questions in all, selecting one question from each unit in addition to compulsory Question No. 1. All questions will carry equal marks.

UNIT - I

Tree: Introduction, Definition, Representing Binary tree in memory, Traversing binary trees, Traversal algorithms using stacks, Binary search trees: introduction, storage, Searching, Insertion and deletion in a Binary search tree, Huffman's algorithm, General trees.

UNIT - II

Graph: Introduction, Graph theory terminology, Sequential and linked representation of graphs, operations on graphs, traversal algorithms in graphs and their implementation, Warshall's algorithm for shortest path, Dijkstra algorithm for shortest path.

UNIT - III

Sorting: Internal & external sorting, Radix sort, Quick sort, Heap sort, Merge sort, Tournament sort, Comparison of various sorting and searching algorithms on the basis of their complexity.

UNIT - IV

Files: Introduction Attributes of a file, Classification of files, File operations, Comparison of various types of files, File organization: Sequential, Indexed-sequential, Random-access file.

Hashing: Introduction, Collision resolution.

TEXT BOOKS

1. Seymour Lipschutz, "Data Structure using C", Tata-McGraw-Hill
2. Horowitz, Sahni & Anderson-Freed, "Fundamentals of Data Structures in C", University Press

REFERENCE BOOKS

1. Trembley, J.P. And Sorenson P.G., "An Introduction to Data Structures With Applications", Mcgrraw- Hill International Student Edition, New York.
2. Mark Allen Weiss, "Data Structures and Algorithm Analysis in C", Addison- Wesley, (An Imprint Of Pearson Education), Mexico City.

BCA - 242 Advanced PROGRAMMING USING C++

Maximum Marks: 100

80

Minimum Pass Marks: 35

20

Time: 3 hours

External:

Internal:

Note: Examiner will be required to set Nine Questions in all. First Question will be compulsory, consisting of objective type/short-answer type questions covering the entire syllabus. In addition to that eight more questions will be set, two questions from each Unit. A candidate will be required to answer five questions in all, selecting one question from each unit in addition to compulsory Question No. 1. All questions will carry equal marks.

UNIT - I

Dynamic Polymorphism: Function Overriding, Virtual Function and its Need, Pure Virtual Function, Abstract Class, Virtual Derivation, Virtual Destructor.

UNIT - II

Type Conversion: Basic Type Conversion, Conversion between objects and basic types, Conversion between objects of different classes, Inheritance: Rules of Derivations - Private, Protected and Public Derivations.

UNIT - III

Different Forms of Inheritance - Single, Multiple, Multilevel, Hierarchical and Multipath Inheritance Roles of Constructors and Destructors in Inheritance, Genericity in C++: Templates in C++, Function templates.

UNIT - IV

Class templates in C++, Exception Handling in C++: try, throw and catch, Files I/O in C++: Class Hierarchy for Files I/O, Text versus Binary Files, Opening and Closing Files, File Pointers, Operation on files.

TEXT BOOKS:

1. Herbert Schildt, C++, The Complete Reference, Tata McGraw-Hill
2. Robert Lafore, Object Oriented Programming in C++, SAMS Publishing

REFERENCE BOOKS:

1. Bjarne Stroustrup, The C++ Programming Language, Pearson Education
2. Balaguruswami, E., Object Oriented Programming In C++, Tata McGraw-Hill

BCA-243 E-Commerce

Maximum Marks: 100

Minimum Pass Marks: 35

Time: 3 hours

External: 80

Internal: 20

Note: Examiner will be required to set Nine Questions in all. First question will be compulsory, consisting of objective type/short-answer type questions covering the entire syllabus. In addition to that eight more questions will be set, two questions from each unit. A candidate will be required to answer five questions in all, selecting one question from each unit in addition to compulsory Question No. 1. All questions will carry equal marks.

Unit-I

Introduction to E-Commerce:-Business operations; E-commerce practices vs. traditional business practices; concepts of b2b, b2c,c2c,b2g,g2h,g2c; Features of E-Commerce, Types of Ecommerce Systems, Elements of E-Commerce, principles of E-Commerce, Benefits and Limitations of E-Commerce.

Management Issues relating to e-commerce. Operations of E-commerce: Credit card transaction; Secure Hypertext Transfer Protocol (SHTTP); Electronic payment systems; Secure electronic transaction (SET); SET's encryption; Process; Cybercash; Smart cards; Indian payment models.

Unit-II

Applications in governance: EDI in governance; E-government; E-Governance applications of Internet; concept of government –to- business, business-to-government and citizen-to-government; E-governance models; Private sector interface in E-governance. Applications in B2C: Consumers shopping procedure on the Internet; Impact on disinter mediation and re-intermediation; Global market; Strategy of traditional department stores.

Unit-III

Products in b2c model; success factors of e-brokers; Broker-based services on-line; On-line travel tourism services; Benefits and impact of e-commerce on travel industry; Deal estate market; online stock trading and its benefits; Online banking and its benefits; On-line financial services and their future; E-auctions – benefits, implementation and impact.

Unit-IV

Applications in B2B: Key technologies for b2b; architectural models of b2b, characteristics of the supplier –oriented marketplace, buyer-oriented marketplace and intermediary-oriented marketplace; Just In Time delivery in b2b; Internet-based EDI from traditional EDI; Marketing Issues in b2b.

Emerging Business models: Retail model; Media model; advisory model, made-to-order manufacturing model; Do-it- yourself model; Information service model; Emerging hybrid

models; Emerging models in India, Internet & E-Commerce scenario in India; Internet security Issues; Legal aspects of E-commerce

TEXT BOOKS:

1. Turban E., Lee J., King D. and Chung H.M: "Electronic commerce-a Managerial Perspective", Prentice-Hall International, Inc.
2. Bhatia V., "E-commerce", Khanna Book Pub. Co.(P) Ltd., Delhi.

BCA - 244 RELATIONAL DATABASE MANAGEMENT SYSTEM
Maximum Marks: 100 **External:**
80
Minimum Pass Marks: 35 **Internal:**
20
Time: 3 hours

Note: Examiner will be required to set Nine Questions in all. First Question will be compulsory, consisting of objective type/short-answer type questions covering the entire syllabus. In addition to that eight more questions will be set, two questions from each Unit. A candidate will be required to answer five questions in all, selecting one question from each unit in addition to compulsory Question No. 1. All questions will carry equal marks.

UNIT - I

Relational Model Concepts, Codd's Rules for Relational Model, Relational Algebra:-Selection and Projection, Set Operation, Renaming, Join and Division, Relational Calculus: Tuple Relational Calculus and Domain Relational Calculus.

UNIT - II

Functional Dependencies and Normalization:-Purpose, Data Redundancy and Update Anomalies, Functional Dependencies:-Full Functional Dependencies and Transitive Functional Dependencies, Characteristics of Functional Dependencies, Decomposition and Normal Forms (1NF, 2NF, 3NF & BCNF).

UNIT - III

SQL: Data Definition and data types, SQL Operators, Specifying Constraints in SQL, Basic DDL, DML and DCL commands in SQL, Simple Queries, Nested Queries, Tables, Views, Indexes, Aggregate Functions, Clauses

UNIT - IV

PL/SQL architecture, PL/SQL and SQL*Plus, PL/SQL Basics, Advantages of PL/SQL, The Generic PL/SQL Block: PL/SQL Execution Environment, PL/SQL Character set and Data Types, Control Structure in PL/SQL, Cursors in PL/SQL, Triggers in PL/SQL, Programming using PL/SQL.

TEXT BOOKS:

1. Elmasri & Navathe, "Fundamentals of Database Systems", 5th edition, Pearson Education.
2. Ivan Bayross, "SQL, PL/SQL-The Programming Language of ORACLE", BPB Publications 3rd edition.

REFERENCE BOOKS:

1. C. J. Date, "An Introduction to Database Systems", 8th edition, Addison Wesley N. Delhi.
2. Oracle 8 -PL/SQL programming -Scott Urman
3. A Guide to the SQL Standard, Data, C. and Darwen, H.3rd Edition, Reading, MA:1994, Addison-Wesley Publications, New Delhi.

BCA - 245 COMPUTER-ORIENTED STATISTICAL METHODS

Maximum Marks: 100

External:

80

Minimum Pass Marks: 35

Internal:

20

Time: 3 hours

Note: Examiner will be required to set Nine Questions in all. First Question will be compulsory, consisting of objective type/short-answer type questions covering the entire syllabus. In addition to that eight more questions will be set, two questions from each Unit. A candidate will be required to answer five questions in all, selecting one question from each unit in addition to compulsory Question No. 1. All questions will carry equal marks.

UNIT-I

Basic Statistics: Preparing Frequency Distribution Table and Cumulative frequency, Measure of Central Tendency, Types: Arithmetic mean, Geometric Mean, Harmonic Mean, Median, Mode.

Measure of Dispersion: Range, Quartile Deviation, mean deviation, Coefficient of mean Deviation, Standard Deviation

Moments : Moments About mean, Moments about any point, Moment about origin, Moment about mean in terms of moment about any point, Moment about any point in terms of Moment about mean.

UNIT-II

Probability Distribution: Random Variable- Discrete Random and Continuous Random variable, Probability Distribution of a Random Variable, Mathematical Expectation

Types: Binomial, Poisson, Normal Distribution, Mean and Variance of Binomial, Poisson, and Normal Distribution.

Correlation: Introduction, Types, Properties, Methods of Correlation: Karl Pearson's Coefficient of Correlation, Rank Correlation and Concurrent Deviation method, Probable error.

UNIT-III

Regression: Introduction, Aim of Regression Analysis, Types of Regression Analysis, Lines of Regression, Properties of Regression Coefficient and Regression Lines, Comparison with Correlation.

Curve Fitting: Straight Line, Parabolic curve, Geometric Curve and Exponential Curve

Baye's Theorem in Decision Making, Forecasting Techniques

UNIT-IV

Sample introduction, Sampling: Meaning, methods of Sampling, Statistical Inference: Test of Hypothesis, Types of hypothesis, Procedure of hypothesis Testing, Type I and Type II error, One Tailed and two tailed Test, Types of test of Significance: Test of significance for Attribute-Test of No. of success and test of proportion of success, Test of significance for large samples - Test of significance for single mean and Difference of mean, Test of significance for small samples (t-test) - test the significance between the mean of a random sample, between the mean of two independent samples

Chi square Test, ANOVA: Meaning, Assumptions, One way classification, ANOVA Table for One-Way Classified Data

REFERENCE BOOKS

1. Gupta S.P. and Kapoor, V.K., Fundamentals of Applied statistics, Sultan Chand & Sons, 1996.
2. Gupta S.P. and Kapoor, V.K., Fundamentals of Mathematical statistics, Sultan Chand and Sons, 1995.
3. Graybill, Introduction to Statistics, McGraw.
4. Anderson, Statistical Modelling, McGraw.

BCA - 246 MANAGEMENT INFORMATION SYSTEM

Maximum Marks: 100

External:

80

Minimum Pass Marks: 35

Internal:

20

Time: 3 hours

Note: Examiner will be required to set Nine Questions in all. First Question will be compulsory, consisting of objective type/short-answer type questions covering the entire syllabus. In addition to that eight more questions will be set, two questions from each Unit. A candidate will be required to answer five questions in all, selecting one question from each unit in addition to compulsory Question No. 1. All questions will carry equal marks.

UNIT - I

Introduction to system and Basic System Concepts, Types of Systems, The Systems Approach, Information System: Definition & Characteristics, Types of information, Role of Information in Decision-Making, Sub-Systems of an Information system: EDP and MIS management levels, EDP/MIS/DSS.

UNIT -II

An overview of Management Information System: Definition & Characteristics, Components of MIS, Frame Work for Understanding MIS: Information requirements & Levels of Management, Simon's Model of decision-Making, Structured Vs Un-structured decisions, Formal vs. Informal systems.

UNIT - III

Developing Information Systems: Analysis & Design of Information Systems: Implementation & Evaluation, Pitfalls in MIS Development.

UNIT - IV

Functional MIS: A Study of Personnel, Financial and production MIS, Introduction to e-business systems, ecommerce – technologies, applications, Decision support systems – support systems for planning, control and decision-making

TEXT BOOK:

1. J. Kanter, "Management/Information Systems", PHI.
2. Gordon B. Davis, M. H. Olson, "Management Information Systems – Conceptual foundations, structure and Development", McGraw Hill.

REFERENCE BOOK:

1. James A. O'Brien, "Management Information Systems", Tata McGraw-Hill.
2. James A. Senn, "Analysis & Design of Information Systems", Second edition, McGraw Hill.
3. Robert G. Murdick & Joel E. Ross & James R. Claggett, "Information Systems for Modern Management", PHI.
4. Lucas, "Analysis, Design & Implementation of Information System", McGraw Hill.