SCHEME OF EXAMINATION
BACHELOR OF COMPUTER APPLICATIONS (BCA)
THREE YEAR PROGRAMME (SEMESTER SYSTEM)
2011

First Year

Note:

1. There will be 70 multiple choice questions (MCQ's) in the question paper consisting of one mark each. Students are required to attempt all the questions.

   Internal assessment marks shall be given on the basis of marks secured by the candidate in the Descriptive Examination to be conducted by the respective study centre. Study centres are required to keep the record of the descriptive examination with them for inspection by the University. The marks of Internal Assessment must be submitted to the University before the termination of the University Examination in the concerned subjects. In the event of non receipt of the Internal Assessment Marks the theory marks secured by the candidate shall be proportionately enhanced.

First Semester

Paper	Nomenclature	External	Internal	Total Marks
DEBCA-101	Computer Fundamental and Programming	70	30	100
DEBCA-102	Internet Technologies and applications	70	30	100
DEBCA-103	Multimedia Information Systems	70	30	100
DEBCA-104	Business Practices	70	30	100
DEBCA-105	Practical Software Lab. (based on Paper DEBCA-101 and Software Tools) (Two sittings)	70	30	100

Second Semester

Paper	Nomenclature	External	Internal	Total Marks
DEBCA-201	Data and File Structure	70	30	100
DEBCA-202	Structured Systems Analysis	70	30	100
DEBCA-203	Mathematical Foundations of Computer Science	70	30	100
DEBCA-204	Digital Electronics	70	30	100
DEBCA-205	Practical Software Lab. (based on Paper DEBCA-201 and Software Tools) (Two sittings)	70	30	100
DEBCA-206	Environment Studies(qualifying subject)*	70	30	100

Second Year

Third Semester

Paper	Nomenclature	External	Internal	Total Marks
DEBCA-301	Computer System Architecture	70	30	100
DEBCA-302	Algorithms and Advance Data Structure	70	30	100
DEBCA-303	Micro-processors and Assembly Language	70	30	100
DEBCA-304	Data Base Systems	70	30	100
DEBCA-305	Practical-Software Lab(based on paper DEBCA-302 and DEBCA-304) (Two sittings)	70	30	100

Fourth Semester

Paper	Nomenclature	External	Internal	Total Marks
DEBCA-401	Operating Systems Organization and UNIX	70	30	100
DEBCA-402	Software Engineering	70	30	100
DEBCA-403	Object Oriented Design and programming	70	30	100
DEBCA-404	Financial Accounting	70	30	100
DEBCA-405	Practical-Software Lab (based on paper DEBCA-401 and DEBCA-403) (Two sittings)	70	30	100

Third Year

Fifth Semester

Paper	Nomenclature	External	Internal	Total Marks
DEBCA-501	Data Communication And Networks	70	30	100
DEBCA-502	Computer Graphics	70	30	100
DEBCA-503	Principles of Visual And Windows Programming	70	30	100
DEBCA-504	Java Programming and Internet Applications	70	30	100
DEBCA-505	Practical-Software Lab (based on paper DEBCA-501,502, 503,504) (Two sittings)	70	30	100

Sixth Semester

Paper Code	Nomenclature	External		Total Marks
DEBCA-601	Project Report	100		100
DEBCA-602	Viva- Voce of Project Report	100		100

BACHELOR OF COMPUTER APPLICATIONS (BCA)

First Semester

COMPUTER FUNDAMENTALS AND PROGRAMMING

PAPER CODE: DEBCA-101

External:70
Internal: 30

Note:

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Computer Fundamentals

Number system: decimal, octal, binary and hexadecimal; Representation of integers, fixed and floating points, character representation: ASCII, EBCDIC; Functional units of computer, I/O devices, primary and secondary memories;

Programming Fundamentals

Algorithm development, Techniques of problem solving, Flow-charting, Step-wise refinement, Algorithms for searching, Sorting (exchange and insertion), merging of ordered lists.

Programming

Representation of integers, characters, real Data types: constants and variables; Arithmetic Expressions, Assignment, statement, Logical expression, Sequencing, Alteration and iteration; ring processing; Sub programs, Recursion, Files and pointers; Structured programming concepts; Top down Design, Development of efficient programs; program correctness; Debugging and testing of Programs.

INTERNET TECHNOLOGIES AND APPLICATIONS

PAPER CODE: DEBCA-102

External:70
Internal: 30

Note:

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UNIT I

Network layer functions and protocols: Switching; routing and congestion control: X.25 ; Internet Protocol(IP)

UNIT II

Transport layer functions and protocols: Addressing flow control; connection management, multiplexing, transmission control, protocol (TCP) and user datagram protocol (UDP), socket and TLI interface

UNIT III

Application layer services and protocols: Domain name services network protocol; electronic mail and file transfer protocol, World Wide Web

UNIT IV

Survey of contemporary Internet Technologies: The role, use and implementation of current tools, basic TCP/IP, name, space, correctness and protocols, Worldwide/HTML techniques for text, images, links and forms

UNIT V

Indexing Methods: Gopher, WAIS, Server side programming, CGI scripts, Security issues, Emphasis on understanding, exploring and extending Internet technologies using Java and Perl

MULTIMEDIA INFORMATION SYSTEM

PAPER CODE: DEBCA-103

External:70

Internal: 30

Note:

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Introduction to multimedia technology-computers, communication and entertainment; framework for multimedia; M/M devices, presentation devices and the user interface; M/M presentation and authoring.

Digital representation of sound and transmission of brief survey of speech recognition and generating digital image compression; JPEG image compression standard; MPEG motion video compression; based media representation and delivery.

M/M Software environments; limitations of workstation operating system; M/M system service; OS Support for continuous media applications; media stream protocol; M/M/file systems and information representation; data-media for M/M and Hypermedia information. Applications of M/M; intelligent M/M system. Desktop BR; Virtual reality OS; distributed virtual environment system; virtual environment displays and orientation tracking; visually coupled system requirements intelligent VR software systems.

Applications of environments in various fields, such as medical, entertainment, manufacturing, business, education etc.

BUSINESS PRACTICE

PAPER CODE: DEBCA-104

External:70

Internal: 30

Note:

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examination with them for inspection by the University. The marks of Internal Assessment must be submitted to the University before the termination of the University Examination in the concerned subjects. In the event of non receipt of the Internal Assessment Marks, the theory marks secured by the candidate shall be proportionately enhanced.

Introduction to Modern Business.

What are management function, planning organization, directing and control.

Introduction to Organization Behavior.

Individual in an organization, Group in an organization, Organization as a system.

Introduction to Human Resource management.

Human resource Planning-Job analysis, Recruitment and training compensation management-payroll and incentives. Human Resource information system. Computer based employee information system. Software package to be used for building an information system for employees, training, recruitment & job analysis A payroll package to be used. Decision analysis: Investment analysis, annuity analysis, compounding analysis, Inventory Theory- EOQ, JIT, Production Scheduling PERT and CPM.

PRACTICAL   SOFTWARE LAB
PAPER CODE: DEBCA-105

External: 70
Internal: 30

Practical Software Lab. (based on Paper DEBCA-101 and Software Tools) (Two sittings)

Second Semester

DATA AND FILE STRUCTURE
PAPER CODE: DEBCA-201

External:70
Internal: 30

Note:

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Data Structure

Linear and list structures; Arrays, stacks, queues, and lists; Sequential and linked structures; Simple lists, circular lists, doubly linked lists, Operations on all these structures and applications: Arrays; Multidimensional arrays, sequential allocation, address calculations, sparse arrays, Tree structures: Trees, binary trees, Tree traversal algorithms, threaded trees, binary search trees, tree in search algorithms, B-tree and applications.

File Structure

Physical storage devices and their characteristics, constituents of a file viz. Fields, records,fixed and variable length records, primary and secondary keys; File operations, Basic file system operations, File Organizations; serial sequential, Indexed sequential , Direct, inverted, multilist. Hashing functions and collusion handling methods.

STRUCTURED SYSTEMS ANALYSIS AND DESIGN
PAPER CODE: DEBCA-202

External:70
Internal: 30

Note:

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Introduction to systems and contemporary systems analysis:

Effective communication in systems analysis: Tools of the systems analysis, problem definition, classification, data collection and analysis.

System planning and alternative, Feasibility and proposal; Use and Management involvement. Planning alternative, design considerations, systems feasibility, section of a system plan, the system proposal.

System Cost Determination: System costs and system benefits, comparative cost analysis, data processing costs, DP cost centre concept.

A structured Approach to System Design: Structured Top-down design, Logical design requirements, data administration and data dictionaries, auditable systems; Forms requirements design, CRT screen design, Program specification, development completion schedule, Structured Walk Through.

Project Management Control: Development of standards, project control, Gantt Charts, PERT & CPM.

System Conversion and Implementation: Planning considerations, Conversion methods, systems follow-up, quality assurance of new system.

MATHEMATICAL FOUNDATIONS OF COMPUTER SCIENCE
PAPER CODE: DEBCA-203

External:70
Internal: 30

Note:

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2. Internal assessment marks shall be given on the basis of marks secured by the candidate in the Descriptive Examination to be conducted by the respective study centre. Study centres are required to keep the record of the descriptive examination with them for inspection by the University. The marks of Internal Assessment must be submitted to the University before the termination of the University Examination in the concerned subjects. In the event of non receipt of the Internal Assessment Marks, the theory marks secured by the candidate shall be proportionately enhanced.

Fundamentals of electronics devices: Overview of semi-conductors physics, diode and transistor characteristics, diode and transistor as a switch.

Saturated and non-saturated logic, TTL, ECL, MCS, CMCS logic circuits; OR, AND, NOT, EX-OR logic, Positive and negative logic; De Morgan's theorem, Universal building blocks, laws and theorems of Boolean Algebra, TTL NAND gates, open collector TTL; wire-or; three state logic; simplifying logic circuits-sum of product and product or sum form, algebraic simplification, Karnaugh simplification; arithmetic circuits; flip-flops and multi-vibrator circuits, counter design techniques; shift registers; encoder, decoder, multiplexor, demultiplexor circuits; D/A and AD conversion.

DIGITAL ELECTRONICS
PAPER CODE: DEBCA-204

External:70
Internal: 30

Note:

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Basics of Semiconductor Physics: Crystalline Structure of the Solids; Crystal Lattice; Band Theory of Solids; Conductor, Insulator, and Semiconductor; Intrinsic and Extrinsic semiconductor.

Semiconductor Device: formation of PN Junction; formation of Depletion Layer; Biasing of PN Junction; Characteristics of PN Junction; PN Junction as a Amplifier.

Junction Transistor: Formation of Junction Transistor; Modes of Study of Junction Transistors; Various Junction Transistor Configurations; Transistors as an Amplifier; Various gains of Junction Transistor.

Boolean Algebra: Boolean Algebra; Basic Theorem and Postulates of Boolean Algebra; Boolean Functions; Algebraic Manipulation of Boolean Functions; Duals and Complements of Boolean Functions; Canonical and Standard Forms; Conversion between Canonical Forms.

Basic Gates: Basic Logic Gate; Derived Gate; –ve and +ve Logic.

Simplification of Boolean Functions: The K-Map Simplification; Product of Sums Simplification; Don't-care Conditions.

Combinational Circuits: Combinational Logic Design; Arithmetic Logic Circuits; Magnitude Comparators, encoder, Decoder; Multiplexers and De-Multiplexer; Implementation of Boolean Functions with MUX.

Sequential Digital Systems: A 1-bit Storage Cell; S-R Flip-Flop; The J-K Flip-Flop; D-Type Flip-Flop; The T-Type Flip-Flop.

Shift Register: Parallel-to-Serial Converter; Parallel in Parallel Out; Ripple (Asynchronous) Counters; Up-Down Counter; Synchronous Counters.

Multi Vibrators: Application of Logic Gates in Timing Circuits; Understand the Operation of the OPAMP; Schimitt Trigger.

PRACTICAL SOFTWARE LAB
PAPER CODE: DEBCA-205

External: 70
Internal: 30

ENVIRONMENT STUDIES (QUALIFYING SUBJECT)*
PAPER CODE: DEBCA-206

External:100

Third Semester

COMPUTER SYSTEM ARCHITECTURE
PAPER CODE: DEBCA-301

External:70
Internal: 30

Note:

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Register transfer and Micro-operations, Register Transfer Language, Bus and Memory

Transfers, Arithmetic, Logic Micro-operations, Shift Micro-operations

Basic Computer Organization and Design: Instruction and Instructions Code, Compute Instructions, Timing and Control, Instruction Cycle, memory Reference Instructions, Input Output and Interrupts, Computer Description.

Programming the Basic Computer: Machine Language, Assembly Language, The assemble program loops, programming Arithmetic and Logic, Subroutines, Input-Outputs Programming, Micro-programmed Control, Control Memory, Address Sequencing Micro-programming Examples, Design of Control Unit

Central Processing Unit: General Register Organization Stack Organization Instruction Formats, Addressing Modes, Data and Transfer Manipulation, Program Control, Reduced Instructions Set Computer, Pipeline and Vector Processing parallel processing Pipeline, Arithmetic Pipeline, RISC Ouoekubem Vector Processing, Arrays Processors

Computer Arithmetic: Addition and Subtraction, Multiplication Algorithms, Division Algorithm, Floating-Point Arithmetic Operations, Decimal Arithmetic Unit, Decimal Arithmetic Operations

Input-Output Organization: Peripheral Devices, Input-output Interface, Asynchronous Data Transfer, Modes of Transfer, Priority Interrupt, Direct Memory Access (DMA), Input0output Processors (IOP), Serial Communication Multi-processors, Characteristics of Multi-processors, Inter-connection Structure, Inter-processor Communication and Synchronization, Cache Coherence.

ALGORITHMS AND ADVANCED DATA STRUCTURES
PAPER CODE: DEBCA-302

External:70
Internal: 30

Note:

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Trees: Search Trees, threading

Storage Management: Run time Storage Management, Garbage Collection and Compaction.

Sorting Techniques: Insertion Sort, Quick Sort, Merge Sort, Heap Sort, Selection Sort, Radix Sort, External Sort, Lower Bound for Sorting by Compression of Keys, Selection and Adversely argument Traversal: Minimum Spanning Tree. Shortest Path, Graph Component Algorithms, String Matching KMP and Boyer Moore Algorithms.

Dynamic Programming: Matric Multiplication and Optimal Binary Search tree Algorithms.

NP Complete Problem: Complexity Classes P and NP; Examples of Problems in the NP Class.

Parallel Algorithms: Parallelism, PRAM and other Models, Parallel Algorithms Finding Maximum Elements in a list Merging and Sorting.

MICRO-PROCESSOR AND ASSEMBLY LANGUAGE
PAPER CODE: DEBCA-303

External:70
Internal: 30

Note:

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Evolution of Micro-Processor: Overview of Intel Pro-Pentium Motorola 68000 Series, Power PC, DEC-Alpha chip, RISC and CISC Architecture

Basic Micro-Processor Architecture and Interface: Internal Architecture, External System Bus, Architecture, Memory and Input/Output Interface

Programming Mode: General-Purpose Register, Pointer and Index Registers, Flag, Segment Register, Program Invisible Register, Memory Addressing and Addressing Modes, Memory Interfacing, Memory Address Decoding, Cache Controllers

Basic I/O Interface: Memory Mapped I/O, Basic Input/Output and Handshaking, Input/Output Port Address Decoding, 8255 Programmable Peripheral Interface, 8279 Programmable Keyboard and Display Interface, 8254 Programmable Time, 8251 Programmable/Communication Interface, Interrupts—Interrupt Vector, Vector tables and Software Interrupt, 8259 Programmable Interrupts Controller, Real-Time Clock, Direct Memory Access, 8237/8257 DMA Controller, Video Controllers, Shared Bus Controller

(This course should be taught in the context of 8085 to Intel – Pro Pentium micro-processor and its assembly languages.)

DATABASE SYSTEMS
PAPER CODE: DEBCA-304

External:70
Internal: 30

Note:

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examination with them for inspection by the University. The marks of Internal Assessment must be submitted to the University before the termination of the University Examination in the concerned subjects. In the event of non receipt of the Internal Assessment Marks, the theory marks secured by the candidate shall be proportionately enhanced.

Data Modelling for a database: Recording and Files, Abstraction and Data Integration.

Database Management System: Relational, Network; Hierarchical.

Relational Data Manipulations: Relational Algebra, Relational Calculus, SQL.

Relational Data Design: Functional Dependencies, Finding Keys 1st to 3rd NFs, BCNF, Losses Join and Dependency Preserving Decomposition, Computing Closures of Set FDs Finding Keys.

Query Processing: General Strategies for Query Processing. Query Optimization, Query, Processor, Concepts of Security, Concurrency and Recovery.

Database Design Project: Definition and Analysis of Evening Systems, Preliminary and Final design, Testing and Implementation Operation and Tuning.

Use of Relational DBMS package for class project

PRACTICAL-SOFTWARE LAB
PAPER CODE: DEBCA-305

External: 70
Internal: 30

Fourth Semester

OPERATING SYSTEMS ORGANISATION AND UNIX
PAPER CODE: DEBCA-401

External:70
Internal: 30

Note:

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Operating Systems Overview

Operating Systems as an Extended Machine And Resource Manager, Operating Systems Classification, Operating Systems And System Calls, Operating Systems Architecture

Process Management Functions

Process Model, Hierarchies and Implementation, Process States and Transitions, Multitasking, Multiprogramming and Multi-Threading, Level Of Schedulers and Scheduling Algorithms, Micro-Kernel Architecture

Memory Management Functions

Memory Management of Single User Operating Systems, Memory Partition, Memory Swapping, Memory Paging, Memory Segmentation, Virtual Memory

Device Management Functions

I/O Device Controllers, Interrupt Handlers, Device Independent I/O Software, User-Space I/O Software, Disk Scheduling, Clock Hardware Software, Disk Scheduling, Clock Hardware Software, Terminal Input/Output Software, File Management Functions, File Naming, File Structure, File Types, File Access Method, File Attributes, File Operations, Symbolic Links, File Sharing And Locking, File Protection And Security, Hierarchical Directory Systems, Distributed File Systems

Concurrent Programming

Sequential And Concurrent Process, Precedence Graph, Bernsterin's Conditions, Mutual Exclusion Problem, Time-Dependency And Critical Code-Section, Classical Process Co-Ordination Problems, Deadlock Handling, Inter-Process Communication

SOFTWARE ENGINEERING
PAPER CODE: DEBCA-402

External: 70
Internal: 30

Note:
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Unit-I

Software engineering fundamentals: Emergence of software engineering (definition and paradigms), a generic view of software engineering, structured analysis, statement of system scope, processes and their allocation to physical elements, steps involved in review process, SRS document, ranked for importance and for stability, organization of SRS document, review of correctness and readability.

Unit-II

Designing software solution: Refining the software specification, application of fundamental design and concept for data, architectural and procedural design using software blueprint methodology, object oriented design paradigm, creating a design document, review of conformance to software requirement and quality.

Unit-III

Software implementation: Relationship between design and implementation, implementation issues and programming support environment, coding the procedural design, good coding style.

Unit-IV

Software testing: System testing, testing fundamentals, test oracles, limitation of testing, strategic issues in testing, software testing methods, integration testing, functional testing, structural testing.

Unit-V

Software maintenance: Introduction, categories of maintenance, corrective maintenance, adaptive maintenance, perfective maintenance.

OBJECT ORIENTED DESIGN AND PROGRAMMING
PAPER CODE: DEBCA-403

External: 70
Internal: 30

Note:

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Unit-I

Introduction to Object Oriented Modelling

Unit-II

Modelling Techniques, Object Modelling, Dynamic Modelling, Functional Modelling

Unit-III

Object Oriented Design

Unit-IV

Comparison of Methodologies

Unit-V

Design Implementation

Unit-VI

Object-Oriented Languages, Applications

Unit-VII

Beginning with C++, Tokens, Expressions and Control Structure, Functions in C++, Classes and Objects, Constructors and Destructors, Operator Overloading and Type Conversions, Inheritance: Extending Classes, Pointers, Virtual Functions and Polymorphism.

FINANCIAL ACCOUNTING
PAPER CODE: DEBCA-404

External: 70
Internal: 30

Note:

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1. **Conceptual Framework of Accounting:** Nature and Scope of Accounting information, Identifying and recording accounting transaction using traditional and accounting equations approach. Generally accepted accounting principles. Accounting Standards in India. Bases of accounting-Cash and accrued. Capital and Revenue item.

2. **Fundamentals of Computerized Accounting system:** Concept of grouping the accounting heads, schemes of assigning the codes to accounting heads. Maintaining the hierarchy of Ledger accounts for preparing control accounts

3. **Applications of Computers in Accounts:**

   (a) Accounting procedures used, in practice, for recording Cash, Bank and Journal Transactions using appropriate voucher

   (b) Preparation of Ledger counts, Cash Book, Journal Book and Bank Book

   (c) Preparation of Trial Balance, Profit and Loss Accounts and balance Sheet

   (d) Accounting for Petty Cash transactions and preparation of petty cash register

   (e) Lease and loan accounting

   (f) Accounting system for preparing and maintaining payrolls

   (g) Inventory Accounting and Control

   (h) Budget a nd Budgetary Control

   (i) Accounting system for orders booking, Processing (forwarding and acceptance) and invoicing for a trading organization

4. **Accounting for Decision Making Control:** Marginal costing and standard costing

PRACTICAL-SOFTWARE LAB

PAPER CODE: DEBCA-405

External: 70
Internal: 30

Fifth Semester

DATA COMMUNICATIONS AND NETWORK

PAPER CODE: DEBCA-501

External: 70
Internal: 30

Note:

1. There will be 70 multiple choice questions (MCQ's) in the question paper consisting of one mark each. Students are required to attempt all the questions.

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Data Communication: Concepts of data, signal, channel, band-width, bid-rate and baud-rate; fourier analysis; maximum data-rate of channel; analog and digital communications, asynchronous and synchronous transmission; data encoding techniques; modulation technique; multiplexing; TI/EI carrner systems; transmission medium; transmission errors, error-detection and correction code.

Network Classification and Data Communication Services: Local area networks, metropolitan area network, Wide area networks, wireless network, internet work, Switched multimega BCA Data Services, X.25, Frame Relay, narrowband and broadband ISDN, Asynchronous Transfer Modes.

Network Reference Models: Layered architecture, protocol hierarchies, interface and services; ISC-OSI reference model, TCP/IP reference Model; Novel Netware, Internet protocol stacks.

Datalink Layer-Functions and Protocols: Framing, error-control flow control, sliding window protocol, DHCL SLIP and PPP protocol.

Medium Access Sub-layer: CSMA/CD & Ethernet, token ring, FDDI; IEEE standards for LAN and WAN, satellite networks TDMA and VSAT.

COMPUTER GRAPHICS
PAPER CODE: DEBCA-502

External: 70
Internal: 30

Note:

1. There will be 70 multiple choice questions (MCQ's) in the question paper consisting of one mark each. Students are required to attempt all the questions.

2. Internal assessment marks shall be given on the basis of marks secured by the candidate in the Descriptive Examination to be conducted by the respective study centre. Study centres are required to keep the record of the descriptive examination with them for inspection by the University. The marks of Internal Assessment must be submitted to the University before the termination of the University Examination in the concerned subjects. In the event of non receipt of the Internal Assessment Marks, the theory marks secured by the candidate shall be proportionately enhanced.

Development of computer graphics; basic graphics and standards; Raster Scan and Random Scan graphics; continual refresh and storages displays; display processors and character generators; colour display techniques; frame buffer and BCABCA operations concepts in raster graphics. Points, lines and curves; ration; polygon filling; conic-secion generation, antiliasing . Two dimensional viewing; basic transformations; interactive picture construction techniques, interactive inputs/outputs devices.

Three-dimensional concepts; 3-D representations, and transformations; 3-D viewing; algorithm for 3-D volumes spot curve and surfaces; Fractals; Quadtree and Octree data structure. Hidden line and surface, rendering and animation.

PRINCIPLES OF VISUAL AND WINDOWS PROGRAMMING
PAPER CODE: DEBCA-503

External: 70
Internal: 30

Note:

1. There will be 70 multiple choice questions (MCQ's) in the question paper consisting of one mark each. Students are required to attempt all the questions.

2. Internal assessment marks shall be given on the basis of marks secured by the candidate in the Descriptive Examination to be conducted by the respective study centre. Study centres are required to keep the record of the descriptive examination with them for inspection by the University. The marks of Internal Assessment must be submitted to the University before the termination of the University Examination in the concerned subjects. In the event of non receipt of the Internal Assessment Marks, the theory marks secured by the candidate shall be proportionately enhanced.

Visual Programming: Introduction, Elements of Visual Languages, Icons, Operators, Grammar, Representing Meaning i.e., Diagram Understanding, Extending Visual Languages for Multimedia, Teleaction Objects, Generalized Icons and Multimedia Operators, Multidimensional Language, Visual Programming Languages, Index Cells as Basic Components for Visual Programming, A Visual Programming Tool for Index Cell Construction, Visual Queries

Generalized Icons: Introduction, Generalized Icons, Examples of Iconic Systems, Formal Specification of Iconic Systems, Iconic Operators, Syntactic Analysis of Iconic Sentences, Semantic Analysis of Iconic Sentence, Specification of User Interfaces as Iconic Systems, Determination of Icon Purity, Fuzzy Iconic System

Visual Language Compiler: A Visual Language Compiler, The Icon Dictionary ID, Specification of Physical Part of an Icon, Specification of Logical Part of an Icon, Structure of ID, Examples for the Definition of ID, The Operator Dictionary OD, An Example, Implementation of the Visual Language Compiler, Discussion.

Windows Programming: The Environment of a Windows Application, Basic Concepts of Windows Programming, Types and Names, WinMain() Function, API Functions, Creating a Main Window, Event-Driven Programming, Displaying Text, The Device Context, The TextOut() Function, Programming with Graphics Device Interface (GDI), Receiving Commands and Data from User

JAVA PROGRAMMING AND INTERNET APPLICATIONS

PAPER CODE: DEBCA-504

External: 70
Internal: 30

Note:

1. There will be 70 multiple choice questions (MCQ's) in the question paper consisting of one mark each. Students are required to attempt all the questions.

2. Internal assessment marks shall be given on the basis of marks secured by the candidate in the Descriptive Examination to be conducted by the respective study centre. Study centres are required to keep the record of the descriptive examination with them for inspection by the University. The marks of Internal Assessment must be submitted to the University before the termination of the University Examination in the concerned subjects. In the event of non receipt of the Internal Assessment Marks, the theory marks secured by the candidate shall be proportionately enhanced.

Internet Applications: Introduction to the Internet, E-mail Architecture and services, user agent, message format and transfer, SMTP, World Wide Web (www)-Domain Name System, The Client side, the server side, creating and loading information on the web, search engines, URL's, HTTP, FTP, Telnet, Web browsers, Chat and bulleting bond internet and NNTP (Network News Transfer Protocol)

Java and the Internet: The JAVA programming language and its characteristics, Java Runtime, environment, JAVA compiler, JAVA developers kit, running JAVA applications and JAVA applets

JAVA Programming: Elements of JAVA, Data types, scalar data types, operators and expressions, control structures, Class, objects and methods, constructors, finalized visibility controls, arrays, strings and vectors, inheritance, interfaces, packages, multireading, applet programming

Exception Handling: Defining and throwing exceptions, creating your own exceptions

Input/Output: Streams, byte and character stream, the class Printstream, data streams string tokenizer class, stream tokenizors Delegation Event Model, AWT classes, AWT controls, Layout managers and menus.

Sixth Semester

1. Project Report - Paper Code: DEBCA 601
2. Viva- Voce of Project Report- Paper Code: DEBCA 602

PRACTICAL-SOFTWARE LAB
PAPER CODE: DEBCA-505

External: 70
Internal: 30

Semester-VI

PROJECT REPORT
PAPER CODE: DEBCA-601

External: 200

Project Report
Evaluation 100
Viva-Voce 100