MASTER OF COMPUTER APPLICATION (MCA)

First Semester

FOUNDATION COURSE IN IT & MS-OFFICE 2000
PAPER CODE DEMCA-101

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.

Introduction: Historical evolution of computers, Classification of computers, Model of a digital computer, functioning of a digital computer, Why computers are useful? Human being Vs computer, Computer as a tool, Applications of computers (desktop publishing, sports, design and manufacturing, research and design, military, robotics, planning & management, marketing, medicine & health care, arts, communications).

Number systems and Boolean Algebra : What is Number system, necessity of binary number system, binary, octal and hexadecimal number system, inter-conversion of numbers, binary arithmetic, character codes, concepts of Boolean Algebra and its requirement.

Input/Output Devices : Punched cards, card-readers, key-punching machines, keyboards, mouse, joysticks, trackballs, digitizer, voice-recognition, optical-recognition, scanners, terminals, point-of-sale terminals, machine-vision systems. Hard-copy devices : Print quality, Impact printers - DMPs, Daisy-wheel printers, Line-printers, Drum printers, Chain printers; Non-impact printers - Inkjet, Laser, Thermal, LED; Plotters. Soft-copy devices : monitors, video-standards (VGA and SVGA).

Memory & Mass Storage Devices: Characteristics of memory systems, types of memory, RAM, ROM, magnetic disks - floppy disk, hard-disk; optical disks - CD, CD-I, CD-ROM; Magnetic tapes; Concepts of Virtual and Cache memory.

Software Concepts : Introduction, types of software - System & Application software; Language translators - Compiler, Interpreter, Assempler; Operating system - Characteristics, bootstrapping, types of operating, operating system as a resource manager; BIOS; System utilities - Editor, Loader, Linker, File Manager. Concept of GUI, GUI standards

Social Concerns : Positive and Negative Impacts of Computer Technology, Viruses and their types, Computer Crimes

Applications of Computers : Scientific, Education, Medicines & Health, Research, Sports, etc

MS-Office 2000

- *MS-Word :* Introduction to MS-Word, Standard Toolbar, WordWrap, Text formatting, Formatting Paragraphs, Aplying Effects to Text, Applying Animation to Text.

- *MS-Excel :* Introduction to MS-Excel, Working with Toolbars, Formatting, Formulas, Data Management, Graphs & Chart, Macros, and other additional Functions.

- *MS-PowerPoint :* Introduction, PowerPoint Slide Creation, Slide-show, Adding Graphics, Formatting, Customizing and Printing.

- *MS-Access :* Introduction, Understanding Databases, Creating a Database and Tables Automatically, Creating and Customizing a Form, Adding, Editing, Sorting and Searching of Records, Creating and Printing Reports, Queries, Creating a Database and Application, Linking, Importing and Exporting Data, Form, Creating Reports, Creating Charts and Pivot Tables.

COMPUTER NETWORKING & MULTIMEDIA
PAPER CODE: DEMCA 102

External: 70
Internal: 30

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Computer Networking

Introduction to Computer Network, Why Computer Network ? Key Issues for Computer Network, Types of Network : LAN, WAN and MAN; Criteria for Classification of Computer Network, LANs : Hardware requirements for LAN, Transmission Channel for LAN, Network Interface Unit, Servers & Workstations, LAN Software. Introduction to Ethernet, Token Ring : Basics and Working, Cables, ring speed. WAN : Transmission Channel for LAN, hardware requirements : Bridges, Routers, Gateways. Private Networks, Public Networks : ISDN, PSTN, PSDN, Value Added Networks.

Connecting PCs : Simple switches, Printer sharing buffers, Zero-slot LANs, Media sharing LANs, Printer Servers, Client and Servers, Interface Cards, Media Access Control, Operating System features, OSI Model, TCP/IP Model, Data encoding & Communication Techniques, Multiplexing and Communication Hardware

Network topology, Network Protocols, Applications of Computer Network. Distributed data processing, Teletext and Videotext Networks

Communication Channels : Wire cables (Telegraph, telephone, twisted-pair, co-axial), Microwave, Fibre-optics, Communication satellites; Channel sharing, data-transmission

Multimedia

Introduction to multimedia technology - Computers, Communication and Entertainment; Framework for multimedia systems; M/M devices, presentation devices and the user interface; M/M presentation and authoring; Digital representation of sound and transmission; brief survey of speech recognition and generation; digital video and image compression; JPEG image compression standards; MPEG motion video compression; DVI technology; time-based media representation and delivery.

Audio Compression and Decompression, Audio Synthesis, MIDI, Speech Recognition & Synthesis, Video Capturing, Compression & Decompression, Real-time 3D, LANs and Multimedia.

Applications of M/M; Intelligent M/M system, Desktop Virtual Reality (VR), VR operating System, Virtual environment displays and orientation tracking; visually coupled system requirements; intelligent VR software systems.

Applications of environments in various fields viz. Entertainment, manufacturing, business, education, etc.

PROGRAMMING IN C AND DATA STRUCTURE
PAPER CODE: DEMCA 103

External: 70
Internal: 30

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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.

Algorithm Development

Introduction to Problem Solving : Top Down Design, Algorithm, Characteristics of Algorithm, Implementation of Algorithms, Efficiency of Algorithms, Analysis of Algorithm.

Fundamental algorithms, Array Techniques, Merging, Sorting & Searching Techniques, Text Processing and Pattern Search, Dynamic Data Structure Algorithms, Recursive Algorithms.

Elements of Program Style, Flowcharts : Flowchart Symbols, Its Types, Benefits and Limitations; Decision Tables, Pseudocodes : Using User Input, Files, Reports and Output on Paper/Console; Practice of Algorithm Development and Flowcharting

C Programming

Basic concepts of programming, problem solving, algorithm designing and flowcharting, concept of structured programming, evolution of C language, advantages of C, variables and constants, operators, expressions, loops, arrays, functions, structures, pointers, file-handling, pre-processing, header-files.

Data Structure

Fundamental Notations: Primitive and Composite data types. Time and Space complexity of algorithms.

Data structures: Arrays, Stacks, Queues, Linked Lists, Trees and Graphs.

File Structures: Concepts of fields, records and files. Sequential file organisation, ISAM, Hashing techniques, Inverted Lists and Multilists.

Sorting: Internal and External sorting. Searching techniques and Merging algorithms

COMPUTER ORGANISATION AND ARCHITECTURE
PAPER CODE: DEMCA 104

External: 70
Internal: 30

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Representation of Information : Number Systems, Integer and Floating-point representation, Character codes – ASCII and EBCDIC

Basic Building Blocks and Circuit Design : OR, AND, NOT, XOR Gates; De Morgan's theorem, Universal building blocks, laws and theorems of boolean algebra, Simplifying logic circuits – sum of product and product of sum form, algebraic simplification, Karnaugh simplification; arithmetic circuits; flip-flops, counters; shift registers; encoder, decoder, multiplexor, demulti-plexor circuits.

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 Codes, Computer instructions, Timing and Control, Instruction Cycle, Memory Reference Instructions, Input-Output and Interrupts; Complete Computer Description.

Programming the Basic Computer: Machine Language, Assembly Language, The assembler, program loops, programming Arithmetic and Logic, Subroutines, Inputs-Outputs programming. Micro-programmed Control; Control Memory, Address Sequencing, Micro-programe Example, Design of Control Unit.

Central Processing Unit: General Register Organization Stack Organization Instruction Formats, Addressing Modes, Data and Transfer Manipulation, Program Control, Reduced Instruction Set Computer, Pipeline and Vector Processing parallel processing Pipelining, 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), input-output processors(IOP), serial communication multi-processors, characteristics of multi-processors, Inter-connection structures, Inter-processor Arbitration, Inter-processor Communication and Synchronization, Cache Coherence

PRACTICAL I

PAPER CODE: DEMCA 105

External: 70
Internal: 30

Second Semester

VISUAL C++

PAPER CODE: DEMCA 201

External: 70
Internal: 30

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Introduction to Visual C++, Getting started with Visual C++, Reading Keystrokes from the keyboard, Handling mouse in VC++, Creating Menus, Toolbar Buttons, Status Bar prompts. Dialog Boxes: Using Buttons and Text Boxes, Creating Check boxes and Radio Buttons, LIST Boxes, Combo Boxes and Sliders, File Handling, Multiple Documents, and Multiple Views, creating Internet Programs- including a Web Browser, Creating Active X controls.

COM: Introduction, Building and using COM Servers in VC++, Building and Using Active X controls in VC++, Building Internet COM components with VC++, COM Security, New COM features Features in Windows 2000, Debugging and Profiling COM Components, Deploying COM Applications.

VISUAL BASIC & ORACLE

PAPER CODE: DEMCA 202

External: 70
Internal: 30

Note:

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Visual Basic

Introduction, Analyzing, Controls and Properties, Coding, Loops, Dialog Boxes, Additional Controls- Option Buttons, Frames, Check Boxes, Scroll Bars, Timer Control, Procedures and Functions, Using Debugging Windows, Database Programming, Crystal Reports. Simple Active X controls.

Oracle

- *Introduction to Oracle* : Overview of RDBMS, Getting started, Modules of Oracle, Invoking SQLPLUS, Data types, Data Constraints, Operators, Data manipulation - Create, Modify, Insert, Delete and Update; Searching, Matching and Oracle Functions.

- *SQL*Forms* : Basic concepts, Form Construction, Creating default form, user-defined form, multiple-record form,Master-detail form.

- *PL/SQL Blocks in SQL*Forms* : PL/SQL syntax, Data types, PL/SQL functions, Error handling in PL/SQL, package functions, package procedures, Oracle transactions.

- *SQL*ReportWriter* : Selective dump report, Master-detail Report, Control-break Report, Test report.

- *QL*Menu :* Various menu styles, using pull-down & bar-menu, Authorisation of SQL*Menu, Creating Oracle Menu, Granting Role Access, Generating & Executing Applications.

- *Stored Procedures/Functions* : Stored procedures, How to create & execute procedures ?, Where to store procedures ?; Stored functions, How to create & execute functions ?, Where to store functions ? Where do procedures & functions reside ?

- *Database Triggers* : Introduction, Use & type of database Triggers, Database Triggers Vs SQL*Forms, Database Triggers Vs. Declarative Integrity Constraints, How to apply Triggers ?, BEFORE Vs. AFTER Trigger Combinations, Creating a Trigger, Dropping a Trigger.

- *Utilities* : Export/Import, SQL*Loader.

SYSTEM ANALYSIS & DESIGN
PAPER CODE: DEMCA 203

External: 70
Internal: 30

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Overview of system analysis and design. Business systems concepts, system development life cycle, project selection, feasibility, analysis, design, implementation, testing and evaluation.

Project Selection : Source of Project requests, managing project review and selection, preliminary investigation.

Feasibility Study : Technical and economical feasibility, cost and benefit analysis

System requirement specification and Analysis : Fact finding techniques, Data flow diagrams, data dictionaries, process organisation and interactions, Decision analysis, decision trees and tables.

Detailed design modularisation, modula specification, file design, system development involving data bases.

System Control and Quality : Assurance4-Design objectives reliability and maintenance, software design and documentation tools top down , bottom up and variants, Units and intergration testing, testing practices and plans. System Controls, Audit trails.

System Administration and Training : conversion, and operation plans.

Hardware and Software Selection : Hardware acquisition, memory process, peripherals, bench marking, vendor selection, software selection-operating system languages, language process, performance and acceptance criteria.

PRACTICAL II
PAPER CODE: DEMCA 204

External: 70
Internal: 30

PROJECT WORK REPORT AND VIVA-VOCE
PAPER CODE: DEMCA 205

External: 70
Internal: 30

Third Semester

RDBMS
PAPER CODE: DEMCA 301

External: 70
Internal: 30

Note:

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- *Basic Concepts* : Introduction, Data Base users, Data models, Schema and Instances : DBMS Architecture and Data Independence, Database language, Data modelling using E-R Model.
- *Relational Model* : Relational Moidel concepts, Relational model constraing, Update operations on relations. The relational Algebra, SQL-A Relational; Database Language.
- *Database Design* : Informal Design Guidances for Relation Scheme, Functional Dependencics, Normal Form Based on Prinmary Keys. Boyeee- codd Normal Form, Multivalued Dependencies and Forth Normal Form. The Database Design Process.
- *Query Processing* : Basic Algorithms for Executing query operations, Using Neuristics in Query optimisation.
- *Concurrency Control* : Cxoncepts, Locking Techniques for concurrency Control, Concurrency control based on Time stamp ordering, Multiversion concurrency control Techniques.
- *Distributed Database* : Concepts, Overview of Client-server, Architecture , Data Fragmentation, Replication and Allocation Technique for Design Query Processing in Distributed Database

SOFTWARE ENGINEERING

PAPER CODE: DEMCA- 302

External: 70
Internal: 30

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Concepts of Software Engineering, Software Characterstics, components applications, software Metrics and Models; Process and Product Metrics, Size metric, Complexity metric (McCabe's Cyclometic Complexity), Halsted Theory, Function Point Analysis.

- *Software Development*: Phases, Process Models, Role of Management, Role of Metrics and Measurement, Software Quality factors.

- *Planning and Software Project*: Cost Estimation, COCOMO, Pulumn, Project Scheduling, Quality Assurance Plans, project Monitoring Plans

- *System Design* : Design Objectives, Design Principles, Effective Modular Design (Financial independence, Coupling Cohession), Design Tools and Techniques, Protolyping Structured Programming

- *Coding* : Programming Prancilices, verification, Monitoring and Control.

- *Testing* : Testing Fundamentals, Test case design, Functional Testing, Structural Testing, Test Plan activities during testing, Unit System , Integration Testing.

- *Reliability* : Concept of Software Reliability, Software Repair and Avalability, Software Errors and Faults Reliability Models (JM, GO, MUSA Markov) Limitations of Reliability Models.

OPERATING SYSTEM AND UNIX

PAPER CODE: DEMCA 303

External: 70
Internal: 30

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- *Operating systems overview*: Operating systems as an extended machine & 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; multi-programming, multi-tasking, multi-threading; level of schedulers and scheduling algorithms, micro-kernel architecture,

- *Memory Management function*: memory management of single user operating systems partition, swapping, paging, segmentation, virtual memory.

- *Device Management function:* I/O devices and controllers, interrupt handlers, device independent I/O software, user-space I/O software; disk scheduling; clock hardware software; terminal input/output software. File management functions; file naming, structure, types, access mechanisms, attributes and operations; hierarchical directory systems, directory structures and directory operations; file space allocations; file sharing, file locking; symbolic links; file protection and security: distributed file systems.
- *Concurrent programming*: sequential and concurrent process; precedence graph, Bernsterins condition; time-dependency and critical code section, mutual exclusion problem; classical process co-ordination problems; deadlock handling, inter-process communication.
- *Unix Operating System* : Overview of UNIX OS in general and implementation of all above functions in Unix Operating System)

INTERNET, WEB PROGRAMMING & JAVA

PAPER CODE: DEMCA 304

External: 70
Internal: 30

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Internet Beginning and Current State, Hardware and Software requirement, ISP and Internet accounts, Web-Home page, URI, Browser, Security on Web, Plug-ins and helpers Searching tools and Search engine FTP, Gopher, Telnet and e-mail.

Web Authoring using HTML

Creating a Web page, Methods of Linking, Publishing, HTML, Text formatting and alignment, Font Control, Arranging text in lists, Images on a Web page, Backgrounds and Colour Control, Interactive Layout with Frames Javascript.

Programming through JAVA

JAVA History, Java features, Java and Internet, Java and World Wide Web, Hardware and software requirements, Java environment, Java Program Structure, Java Tokens, Java Virtual Machine, Constants, Variables and Data Types, Operators and Expressions, Decision Making and Branching, Decision Making and looping Classes and Methods, Interfaces, Packages, Managing Errors and Exceptions.

Programming

Applet

Local and remote Applets and Applications, Applet life cycle, creating and Executable. Applet, Passing Parameters to Applet.
JavaBeans, JDBC, CORBA, RMI. Overview of CGI Programming.

PRACTICAL III

PAPER CODE: DEMCA 305

External: 70
Internal: 30

ARTIFICIAL INTELLIGENCE
PAPER CODE: DEMCA 401

External: 70
Internal: 30

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Problem solving

- *State space search*: Production systems, Search space controll Depth first search, unknown search- Hill climbing best first search, branch and bound. Best First Search, Problem Reduction, Constraints, Satisfaction, Means End Analysis.

Knowledge Representation

- *Predicale logic* : Skolemzing queries, Unification, Modus pones, Resolution, dependency directed back tracking.
- *Rule Based Systems*: Forward reasoning Conflict resolution, Backward reasoning. Use of non back track.
- *Structured Knowledge Representation Semantic Net* : Slots exceptions and defaults frames Handling uncertainty Probabilities reasoning, Use of certainty factor, Fuzzy logic

Learning

Concept of learning , (7.3) learning automation, genetic algorithm, learning by induction, neural nets back propagation

Experts Systems

Need and justification for expert systems, Knowledge acquitions, Case studies MYCIN, RI

COMPUTER GRAPHICS
PAPERCODE: DEMCA 402

External: 70
Internal: 30

Note:

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Overview of Computer Graphics : Interactive graphics, passive graphics, Advantages of Interactive Graphics.

Display Devices: Refresh CRT, Random-Scand and Raster Scan Motitor, Colour CRT Monitors DVST Prasma, Penel Displays, LED and LCD monitors, Hard copy devices

Scan conversion: Scan converting a point, line, circle and ellipse

2-D graphics transformations (Rotations, Scaling, Translations, Reflecting Shearing), Composite 2D graphics transformations, 2-D viewing and clipping , Windowing concepts, clipping algorithms (Line, Area abd Text-Sutherland-Cohen, Mid-point subdivision), Window to view port transformation Printitive and attributes, Exterior and Interior clipping.

Interactive Graphics: Concept of Positioning and Pointing, Interactive Graphic Devices (Key Boards, Touch Panels, Light Pens, Graphic tablets, Joysticks, Mouse, Voice Systems), Interactive Graphical Techniques. Basic Positioning Methods, Constraints, Gride, Gravity field, Rubber Bond Methods, Sketching, Dragging, Inking and Painting

Computer Graphic Software : Introduction, GKS (Prinutive, attributes and Viewport, Display subroutines), PHIGS/ PHIGS+

3-D Graphics : 3D Graphics transformations (Rotation, Rotation abpout an arbritary line Scaling , Translation) , Parallel and Perspective Projections, Concepts of Hideen Line, Hidden Line and Surface elimination methods(Z-Buffer, Scan-line, Painter's Subdivision). 3-D viewin g and clipping 3-D Object Representation: Wireframe model Bezier Curves and Surfaces

OBJECT-ORIENTED ANALYSIS AND DESIGN

PAPER CODE: DEMCA 403

External: 70
Internal: 30

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- **Abstract Data Types** :   Model of Real World, Autonomy, Generation of correct Applications, Resusability Classes, Instance Values, Methods and Messages, Creating and destroying Objects, Constraints on object and Instance Variables, Pre and Post conditions of Methods.

- **Inheritance**: Subsets as Subtypes, Sub typing of Structured Types Contrasting in inheritance with subtyping, Implicit Subtyping verses Explicit inheritance, Subtyping and dynamic binding class inheritance. Redefining Instance variables, Hiding Instance Variables inheritting methods, Method Overriding, Invoking Superclass method, Constrained Overriding, Inheritting the Interface, Excluding Super class Methods metaclasses, Explicit Support, Implicit of hiden Metaclasses, Object Oriented Languages without Metaclasses, Prototype Systems and Deligation, Multiple inheritance.

  Polymorphism, Object Identity, Object Modelling concepts, Object Oriented Design, Object Oriented Programming Languages, Object Oriented Database, Object Oriented User Interface.

- **Overview C + + :**   Linkages, How to make a Library, Functions, Macros

- **Class & objects :** Data Members, Member Functions, Private and Public Members, Default Labels, Data hiding and Encapsulation, Arrays within a class, Class Function Definition and pass values

- **Operator Overloading** : Operator Function, User Defined Type Conversion Literal, Large Objects, Assignments and Intialization, Subcripting, Function Call, Deferencing , Increment and Decrtement A string Class, Friends and Members.

- **Inheritance through Extending C. :** Concept of Inheritance, Visuibility Modes, Private, Public, Protected, Single Inheritance : Privately derived, Publically derived

- **Streams, Templates and Design of Libraries** : Output, Input, Formatting, Files and Streams, Design of libraries

- **Object Oriented Analysis & Design** : Object Oriented Development, System Design, Object Design, Entity Relationship Model, Overview of Existing methodologies.

- **Semantic and Entity Relationship Modeling** : Contrasting Design for Data bases and OOA/OOD

- **Overview of Existing Methodologies:** Object Oriented Analysis, Object Oriented Design, Object Diagram, Dynamic Model, Functional Model.

PRACTICAL IV

PAPER CODE: DEMCA 404

External: 70
Internal: 30

PROJECT REPORT

PAPER CODE: DEMCA 405

Evaluation: 50
Viva-Voce: 50

Fifth Semester

INTERNET PROGRAMMING USING C#

PAPER CODE: DEMCA 501

External: 70
Internal: 30

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Introduction to Internet, understanding the Internet, A tower of the Internet Hardware requirement to connect to internet, S/W requirement and internet Service products.

Internet Address, mail-using mail from shell account.

Understanding the web, using the web, Advanced topics using web from a shell a/c.

Introduction to use net file types used on the internet, Mailing lists, Telnet Talk: using talk from a shell a/c, IRC Basics, TCP/IP

Internet Programming with C#: Creating Applets, applications, security etc.; DB connectivity options, internet applications, DB access, User Interface classes

SOFTWARE TESTING AND QUALITY ASSURANCE

PAPER CODE: DEMCA 502

External: 70
Internal: 30

Note:

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Testing and the related concepts: significance and potential; Testabilty and features og Test cases.

Software Testing techniques; WBT, BBT, Ticking Box Testing; static analysis, symbolic testing, program mutation testing, input space, partitioning, functional program testing, data flow guided testing

Software testing strategies; Approach, Issues; integration, incremental, System, alpha, Beta testing etc; Comparative evaluation of techniques: Testing tools; Dynamic analysis tools, test data generators, Debuggers, test drivers etc

Technical Metrics for Software: Quality Factors, framework; Metrics for analysis, design, testing source code etc

Object Oriented Testing : OOT strategies and issues: Test Case design, interface testing

Quality assurance: Concept, importance and essence; FTR, structured walk through technique etc.

SW Reliability, validation, safty and Hazards Analysis; Features affecting quality of software; SQA Plan

Quality models : ISO 9000 and SEI-CMM and their relevance.

WINDOWS PROGRAMMING

PAPER CODE: DEMCA 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.

Windows basic concepts, window API, DEF Files, creating windows, message,

x-windows: Mouse and Keyboard.

Introduction to resources, designing and creating menus, pop-up menus, user defined resources.

Bitmaps and dialogues; Windows animation; Font basics; windows controls; Font display, static controls, edit controls, list boxes, psychic windows

Overview and structure of windows programming, coding conventions; displaying text, mouse, graphics device interfaces

IT MANAGEMENT

PAPERCODE: DEMCA 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.

Concept of Management and administration Management as art and profession; IT and Management: Role, Relationship, etc.

IT in Management: Function of Management; planning, organizing, staffing, directing, control, leadership communication; Organizations: forms, principles, functional areas of management, finance, personnel, production and marketing.

Special issues of IT Management and Experiences; Interaction between R & D and Engineering activities, Transfer of New product developments into manufacturing Technology planning and approaches; Efficient linking of user and developer

Approaches for technological upgradation and change.

SOFTWARE LAB
PAPER CODE: DEMCA 505

External: 70
Internal: 30

PROJECT REPORT
PAPER CODE: DEMCA 601

Evaluation: 100
Viva-Voce: 100