

# 10

## Computer Studies

B.A./B.Sc.: Elective

### Outlines of Tests

<u>Paper</u>	<u>Title of Course</u>	<u>Marks</u>
'A'	Computer Studies (Written):	100
Section- I	Introduction to Information Technology	50
	Theory:	35
	Practical	15
Section II	Computer Programming	50
	Theory:	35
	Practical	15
'B'		100
Section - I	Data Base Management Systems	50
	Theory:	35
	Practical	15
Section - II	Operating Systems and Networks	50
	Theory:	35
	Practical	15
	<b>Total:</b>	<b>200</b>

### Syllabi and Courses of Reading

#### PAPER A

**100 Marks**

#### **Section I: Introduction to Information Technology**

**50 Marks**

**Theory: 35 Marks**

**Practical: 15 Marks**

#### **Theory:**

Overview of Computer Systems: Uses, importance, future needs; Types of Computers; super-mainframe, mini, micro, desktop, notebook, personnel and workstations. Processing of Data; data and information, text codes. Part of Computer: CPU, control unit, arithmetic unit, memory, ROM, RAM, flash memory, cache memory, computer clock, control bus, data bus, address bus, co-processors, types of microprocessors. Interacting with Computer: input devices, e.g. key board, keys, arrangement on key board, mouse trackballs, touch screens, barcode readers etc; output devices, monitors, resolution, refresh rate, dot pitch etc. Printers: types of printers, plotters. Storage Devices: floppy disk, hard CD, tape disk, magnetic and optical storage. Types of Software: Systems software, shareware and application software. Operating Systems: operating systems and user interface, running programs, managing files, managing hardware, utility programs. Network and Data Communication: uses of network, Types of Network: LAN, WAN, File Server, Client-Server, peer-to-peer. Network Topologies: bus, star ring. Network Media and Hardware, Network Software, Data Communication over Telephone Lines: modem, ISDN, T1, T3 and ATM. Internet: How does Internet works, backbones, gateways, addressing schemes. Features of Internet: e-mail, news, telnet, FTP, gopher, chat, World Wide Web, online services. Accessing the Internet Application: connection through LAN, connection through modem, connection through high-speed lines.

#### **Recommended Books:**

1. "Introduction to Computer" by Peter Norton.
2. "Discovering Computers 2002", G.B. Shelly, T.J. Cashman and M.E. Vermatt.

GC University, Faisalabad

3. "Introduction to Computer Science", Scham's Series.

### **Practical**

#### **Windows 2000:**

1. Exploring Windows 2000 work place: desktop component and customizing them exploring parts of a window, menu dialog boxes, multitasking and shutting down windows.
2. Working with the Accessories: calculator, notepad, paint program, media player, etc.
3. Organizing files and folders using window explorer.
4. Using Windows System Tools, Working with "Control Panel". Installing new software and hardware.
5. Using Internet: working with internet explorer, surfing with internet explorer, working with e-mail.

#### **Word 2000:**

1. Exploring Word 2000, work place: document, menus, tool bars, dialog boxes and other icons.
2. Saving and opening documents.
3. Editing and formatting text.
4. Formatting and printing documents.
5. Working with tables and graphics.
6. Working with Mail Merge and hyper links.

#### **Excel 2000:**

1. Exploring Excel 2000 work place: work book, worksheet, menus, tool bars, dialog boxes, and other icons.
2. Worksheet basic: entering data, editing worksheet, inserting & deleting cell, hiding data, copying data and auto fill.
3. Formatting and printing a work sheet.
4. Using functions in formulas.
5. Creating charts and adding graphics.

#### **Recommended Books:**

1. "Microsoft Windows 2000 Professional: Comprehensive Course" by D. Buseeh and M. Bergerud (2001).
2. "Teach Yourself: Microsoft Windows 2000 Professional" by B. Underdah.
3. "Microsoft Windows: "millennium edition fast & easy" by D. Korers (2000).
4. "Microsoft Word 2000 Simplified" from maran Graphics, IDG Books (1999).
5. "Learn Word 2000" by J. Preston and R.Ferret (1999).
6. "Excel for Windows 2000" by M. Langer (1999).
7. "Microsoft Excel 2000: Comprehensive Course" by H.A Napier and P.J. Judd.
8. "Using Front Page 2000" by D.A. Tauber & et.al .(2001).

## **Section II : COMPUTER PROGRAMMING**

**50 Marks**

**Theory: 35 Marks**

**Practical: 15 Marks**

### **Tool: Visual Basic**

#### **Theory:**

Introductory Programming Concept: problem solving, algorithms and pseudo code. Programming Techniques: visual programming, event driven programming, object oriented programming, structured programming. Visual Basic Integrated Development Environment. Control Elements. Data Types, Variables and Assignment Statements, Arithmetic Operators and Scope: data conversions, variable scope, declaring from and project variables and constants. Modules and Procedures: sub-procedures, event procedures, function procedures, and optional argument. Branching and Looping: procedures , function procedures and optional argument. Branching and Looping: relational operators and logical expressions, logical operators, if-then-Else, Case, For-Next, Looping with Do and While Ipp: Menu and Dialog Boxes; Arrays Searching and Sorting: what is array, declaring arrays, using arrays, control

arrays, enumerations user defined types. Error Handling, Sequential Files, file details, file operators, add report to programs, programming with fixed report length. Introductory data base programming: why use database, data control, and creating data-bound controls.

**Recommended Books:**

1. "Computer programming with Visual Basic 6" by Alka R. Harriger, Susan K. Lisak.
2. "Visual Basic 6: How to Program" by Deitel, Deitel and Nicto Prentice-Hall.

**Practical:**

3. Print leap years in a give century.
4. Given to strings, count the number of times the second string appears in the first string.
5. Create a Program that convert Fahrenheit temperature to the Celsius scale and back again.
6. Search for a given name in an array of names.
7. Reverse an array.
8. Reverse a given string.
9. Build a scientific calculator.

## **PAPER B**

**Section - I: Database Management System**

**50 Marks**

**Theory: 35 Marks**

**Practical: 15 Marks**

**Theory:**

Introduction to Data Processing: relationship of application, programs and the DBMS, file-processing systems, database processing systems, history of database processing, data base development: database and DBMS, creating a database, components of database applications, database development processes. Entity Relationship modeling, Semantic Object Model, Relational Model and Normalization: relational model, normalization ---1 to 5<sup>th</sup> normal forms, domain/key normal form, synthesis of relations, multivalued dependencies, Iteration 2. Database Design Using Entity Relationship Models: transformation of entity-relationship models into relational database designs. Database Design with Semantic Object Models: Transformation of semantic objects into relational database designs. Database Application Design: characteristics of database applications, form design, report design, application program design. Foundations of Relational Implementation: defining relational data, querying multiple tables, exists and not exists, changing data. Relational Implementation of Personal Databases: creating the database schema, creating forms, creating reports. Client Server database systems: Client-server architecture, reliability and security, open database connectivity (ODBC) standards, applications of ODBC in client-server systems.

**Recommended Books:**

1. "Database Processing", Sixth Edition by David M. Kroenke (1998).
2. "Database Systems" by C.M. Ricardo.
3. "Fundamental of Database Management Systems", by R. Elmarsi and S.B. Navate.
4. "Fundamental of Database Systems" by C.J. Date

**Practical:**

1. Exploring Access 2000 work place: opening access applications, menus, toll bars other components.
2. Designing and creating a database.
3. Entering and editing data into tables.
4. Designing and using basic forms.
5. Integrating Access with other Microsoft Office applications and Internet.
6. Establishing Relationships between tables.
7. Finding, soring and filtering information.
8. Creating basic queries.
9. Designing and using basic reports.
10. Creating and using data access Pages.
11. Creating action queries.

**Recommended Books:**

“Microsoft Access 2000: Comprehensive Course” by H.A. Napier & P.J.J. (2001)

**PAPER B****Section II: Operating Systems and Networks****50 Marks****Theory: 35 Marks****Practical: 15 Marks****Theory:**

Introduction to Operating Systems: Types of operating systems, operating systems modes. Process Management: process scheduling, process state, scheduling criteria, process supervisor calls. Inter-process, Communication and Synchronization: inter process communication, deadlock, deadlock presentation, deadlock avoidance, deadlock detection, recovery from deadlock. Memory Management: simple absolute partition, single relocate able partition, multiprogramming, multi partitions, simple paging, simple segmentation, multi partitions, simple paging, simple segmentation, segmentation with paging, page and segment table, swapping, overlaying. Virtual Memory: demand paging, segmentation. File Systems Management: directories and names, types of file systems objects, file system functions, information types, file system architecture, Device Management: hardware I/O organization, software organization, devices. Security : authentication , prevention, detection, correction, identification, threat oategories, program threats.

Networking Basic Concepts: line configuration, topologies, transmission modes, categories of network, internetwork. The OSI Model: layered architecture, functions of the layers. TCP IP protocols suite. Transmission Media: twisted-pair, coaxial cable, optical fiber:

**Recommended Books:**

“Operating Systems” by J.A. Harris (Schaum’s outlines) 2002.

“Data Communications and Networking” by B.A. Forouzan, 2<sup>nd</sup> Edition.

**Practical:**

1. Installation of Windows 2000 Professional: Installation from CD, Installation from Network.
2. Configuration the Windows 2000 Environment: Control Panel, Management Console, Installing New Hardware.
3. Managing the Desktop: Desk Setting, Accessibility Features, Local Settings.
4. Managing Users: Creating Users, Disabling User Account, Deleting User Account, Renaming User, Changing Password, Managing User Properties.
5. Managing Groups: Creating Groups, Group Membership, Renaming Group, Deleting Group, Local Group Policies.
6. User Profiles and Hardware Profiles: Local User Profiles, Roaming Profiles, Mandatory Profiles, Managing Hardware Profiles.
7. Managing Disks: File Systems, File System Conversions, Disk Storage, Disk Management Utilities.
8. Files and Printing Management: File and Folder Basic Management, Creating Shares, Share Permissions, Managing Printer Properties, Sharing Printer, Printer Permissions.
9. Managing Network Connections: Network Dataflow, O S I Model Layer, Installation and Configuration of Network Adapter, Installing and Configuring Network Protocols.
10. Dialup Networking and Internet Connectivity: Configuring General Modem Properties, Running Modem, Diagnostics, Configuring Advance Modem Properties.
11. Managing System Recovery Functions: Recovery and Backup, Using Backup, Utility, Using Restore Wizard.

**Recommended Books:**

“Windows 2000 Professionals Study Guide” by L. Donaisald (2001).