PANJAB UNIVERSITY, CHANDIGARH.

Information Technology (Elective)
for B.A./B.Sc./B.Com. I, II, III w.e.f. Examination 2020-21
Scheme of Examination

FIRST SEMESTER

UNIT - II

2.

SECONDARY SEMESTER

Paper – B : Computer Programming using C

Total Periods (6 Periods/week): 60 Max Marks: 65 Exam Hours: 3

Objective: This course enables the students to familiarize them with problem solving on computers using programming language ‘C’.

Note:

i. **The Question Paper will consist of Four Sections.**

ii.

Pointer Vs Arrays, Arrays of pointers, Pointers to Pointers, Initialising Pointers, Pointers to functions, function returning Pointer, Functions with variable number of Arguments.

UNIT - IV

4. **Structures: Basics of Structures, Declaringa structure, Referencing structure elements, Array of structures, Passing structures to functions, passing entire structure to functions,Structure Pointers, Declaring a structure pointer, Arrays and Structures within Structures; Unions: Declaration, Uses, Enumerated data types, typedef, Example algorithms:**

THIRD SEMESTER

Paper – A : Computer Programming using C++

Total Periods (6 Periods/week): 60 **Max Marks: 65** **Exam Hours: 3**

Objective: The objective of the paper is to familiarize the students with steps in problem solving on computers and create skills in programming using C++.

Note:

- **i. The Question Paper will consist of Four Sections.**
- **ii. Examiner will set total of NINE questions comprising TWO questions from each Section and ONE compulsory question of short answer type covering whole syllabi.**
- **iii. The students are required to attempt ONE question from each Section and the compulsory question.**
- **iv. All questions carry equal marks unless specified.**

SECTION -C

3. Polymorphism: Definition, Application and demonstration of Data Abstraction,

Paper – C : Practical on Paper - A

Total Periods (6 Periods/week): 60 Max Marks: 25 Exam Hours: 3 Note for the Paper setter: Paper will be set at the time of examination. Due weightage may be given to the practical note-book and assignments.

FOURTH SEMESTER

Exception Handling: Fundamentals, exception types, using Try and catch, Multiple Try and Catch clauses, Nested Try statements, Built – in exceptions.

Multi-threaded Programming: The Java Thread model, Thread priorities, synchronizations,

FIFTH SEMESTER

Paper – A : Database System and VB .NET

Total Periods (6 Periods/week): 60 Max Marks: 65 Exam Hours: 3

Objective: The objective of the paper is to create skills in RDBMS and visual Basic. The students should be able to independently develop database projects.

Note:

- i. **The Question Paper will consist of Four Units.**
- ii. **Examiner will set total of NINE questions comprising TWO questions from each Unit and ONE compulsory question of short answer type covering whole syllabi.**
- iii. **The students are required to attempt ONE question from each Unit and the compulsory question.**
- iv. **All questions carry equal marks unless specified.**

UNIT - I

1. **Overview of the visual Studio .NET IDE: Menu Bar and Tool Bar, Solution Explorer, ToolBox, Properties, Displaying and printing Text, Displaying Image, Arithmetic, relational operators, Control structures (branching, looping) , assignment operators.**

2. **Procedures :**

7. Querying Multiple Tables:

Collating Information: Equi Joins, Cartesian Joins, Outer Joins, Self Joins,

SIXTH SEMESTER

Paper – B : Linux Administration

Total Periods (6 Periods/week): 60 Max Marks: 65 Exam Hours: 3

Objective: The objective of the paper is to familiarize the students with Linux Operating System.

Note:

i. The Question Paper will consist of Four Units.

ii. Examiner will set total of NINE questions comprising TWO questions from each Unit and ONE compulsory question of short answer type covering whole syllabi.

iii. The students are required to attempt ONE question from each Unit and the compulsory question.

iv. All questions carry equal marks unless specified.

UNIT - I

1. Introduction to Operating Systems, its need and services, Simple Batch systems, Multi- programmed batched systems, Time sharing systems, Parallel systems, distributed systems and real time systems.

2. Introduction to Linux: What is Linux, Linux's History, Minimum System Requirements; Installing Linux : Working with Linux, Floppy-less Installation, Boot and Root Disks, Choosing Text or Graphics Installation, Setting up your Hard Drive, Formatting the Partitions, Setting up the Ethernet, Configuration X, Selecting packages to Install, Using LILO; Partitioning the Hard Disk : Linux Swap Space Partitions, Linux's fdisk, Enabling the Swap Space for Installation, Creating the Linux File-system partition, Using LILO

3. Using Linux: Starting and Stopping your Linux System, Linux Shutdown Commands, Login, Passwords, Creating a New Login, Logging Out; Trying out your new Login : Linux Error Messages, Search Paths; The who Command, Commands and Programs.

UNIT - II

4. Basic Linux Commands: How Linux Commands Work, Command Options, Other Parameters, Input and Output Redirection, National conventions used to Describe Linux commands, Online help available in Linux, The Linux Man pages, Finding keywords in Man pages, The bash shell help facility; Wildcards : * and ?, Environment Variables, Processes and How to Terminate them, The process status Command : ps, The process termination command : kill, Becoming someone else, the su command, the grep command.

5. Using the File System: Overview of files, Common types of files, filenames, Directories an Overview, Parent directories and sub-directories, The root directory, How directories are named, The home directory; Navigating the Linux file System :

pwd command, Absolute and relative filenames; cd command, Creating and Deleting files : Cat, Creating Directories, Moving and Copying files, Moving and Copying with Wildcards, Moving Directories, Removing files and directories, Fear of Compression: The Zipless file, Important directories in the Linux file System : / , /home, /bin, /usr, /usr/bin, /usr/spool, /dev, /usr/bin, /sbin, /etc.

6. File and Directory Permissions: File and Directory ownership, User and ownership, Groups, Changing group ownership, File Permissions, UMASK Setting, Changing File Permission, Changing directory permissions; Bash : What is Shell ? How the Shell gets Started, The most common Shells; The Bournne again shell (Bash): Command-line Completion, Wildcards, Command History, Aliases, Input Redirection, Output Redirection, Pipelines Shell, Prompts, Job control, Customizing bash, bash commands, bash variables.

UNIT - III

7. Linux - tcsh: An Introduction to tcsh, Command completion, Wildcards, Command History, Aliases, Input and Output Redirection, Pipelines, Prompts, Job Control; Key Bindings, Correcting Spelling Errors, Pre-commands, Change directory Commands, Monitoring Logins and Logouts, Customizing tcsh, tcsh Command Summary, tcsh variables.

8. Shell Programming: Creating and Running Shell Programs, Using variables : Assigning a value to a variable, Accessing the value of a variable, Positional Parameters and other Built-In Shell Variables; The Importance of Quotation Marks : The test Command, The tcsh Equivalent of the test command, Conditional Statements : if Statement , case Statement; Iteration Statements : for Statement, while Statement, until Statement, shift Command, select Statement, repeat Statement, Functions.

9. Editing and Typesetting: Text Editors vi, The vi Editor, Starting vi, vi modes, Inserting Text, Quitting vi, Moving the Cursor, Deleting Text, Copying and Moving Text, Searching and Replacing Text, Setting Preferences.

UNIT - IV

10. Linux for System Administrators: System Administration Basics, The root Account, Starting and Stopping the System, Booting from a Floppy, Using LILO to Boot, Shutting Down Linux; Mounting File Systems : Mounting a Floppy, Creating a New file System, Un-mounting file Systems, Checking file Systems, Using a file as Swap Space; Compressing files with gzip and compress : Using tar, Backups, Setting up your System : Setting the System Name, Using a Maintenance Disk, how to reset forgotten root password, Setting the Login Message.

11. Networking & Network Services : What is TCP/IP ? Hardm n MQ tCP/ a valUre þ

References :