B.SC. (COMPUTER MAINTENANCE) PART II (SEMESTER III)

2018-19, 2019-20 and 2020-21 Session

CODE	TITLE OF PAPER	MAXIMUM MARKS			
		UNIVERSITY EXAMINATION	CONTINOUS ASSESSMENT	TOTAL MARKS	TOTAL TIME ALLOWED
BCM-201	Computer Peripherals and Maintenance	70	30	100	3 Hrs
BCM-202	Programming in C	70	30	100	3 Hrs.
BCM-203	Punjabi	70	30	100	3 Hrs.
BCM-204	Software Lab – II (Programming in C)	60	40	100	3 Hrs.
	Total	**270**	**130**	**400**	

Note:

1. The breakup of marks for Software Lab will be as under:
   i. Lab record   15 Marks
   ii. Viva Voce   15 Marks
   iii. Program Development and Execution   30 Marks

2. The breakup of marks for internal assessment for theory papers will be as under :
   i. One or two tests out of which minimum one best will be considered   15 Marks
   ii. Assignment/Quizzes   7.5 Marks
   iii. Attendance, Class Participation and Behavior   7.5Marks

BCM-201: Computer Peripherals and Maintenance

Maximum Marks: 70   **Maximum Time: 3 Hrs**

Min Pass Marks: 35%   **Lectures to be delivered: 45-55Hrs**

A) Instructions for paper-setter

   The question paper will consist of three sections A, B & C. Sections A & B will have four questions from the respective sections of the syllabus and will carry 40% marks each. Section C will have 6-12 short answer type questions which will cover the entire syllabus uniformly and will carry 20% marks in all.

B) Instructions for candidates

 Candidates are required to attempt two questions each from sections A & B of the question paper and the entire section C.

SECTION-A

Monitors: Block diagram of monochrome monitors. Pixels and resolution, Sync section, Position video amplifier, Display basics, test mode and graphic mode, Display adapter cards, HGA, CGA,VGA, EGA and super VGA, How they fail, trouble shooting and elimination, maintenance chart, Monitor adjustments, size, brightness, focus etc, Fault in various sections of monochrome monitors, Block diagram of color monitors, basic color theory, faults in color section

Keyboards: Study of keyboards, types, interface 8048, Interconnection to PC, Common faults and diagnostics, Introduction to mouse on serial ports, Parallel port card, serial port card, integrated card, Joy stick, light pen, graphics table controller.

Printers: Types of printers (DMP, INKJET, LASER & LINE), Connecting printers to computers, Preventive maintenance of printers.

Memories: How memory works, Memory speed, access time, wait states, Types of memory, Dynamic and static memory, Cache memory, shadow RAM, ROM chips, Reading memory error messages, adding RAM, Tips on installing memory chips, Static and handling precautions.

SECTION-B

Disk structure: Cylinders, heads, platters, tracks and sectors, structure of a disk.

Cluster Performance: Access time, seek time, latency period, data transfer rates, and interleave factors, hard disk controllers, Types of interface between controller and drives.

Hard disk software installation: Physical formatting, partitioning, high level formatting, Hard disk installation

Floppy Disks: Types, structure, working principles. Removing, configuring and installing floppy disk drive, Floppy drive testing, trouble shooting and adjustment .IDE controller card. CD-ROM drive:- CD drives mechanism installation of CD drive. Mastering advanced –drive technologies:- CD-ROM : SCSI\CD-R, CD-RW, DVD-ROM. Working Principals, types and installation of mouse, scanner and modem

Mouse: Circuit Diagram, Fault Finding, Repairing, Repairing MODEM, Circuit Diagram, Fault Finding, Repairing.

Repairing of Speakers, Fault Finding, Repairing and Repairing of Scanners.

Text Book:

1. Hardware Trouble Shooting and Maintenance by B. Govinda Rajalu, IBM PC and   Clones,
    Tata McGraw Hill 1991

Reference Books:

1.   PC Systems, Installation and Maintenance, Second Edition by R. P. Beales
2.   PC Upgrade & Repair Black Book by Ron Gilster
3.   Inside the PC by Peter Norton's

BCM-202: Programming in C

Maximum Marks: 70   **Maximum Time: 3 Hrs**

Min Pass Marks: 35%   **Lectures to be delivered: 45-55 Hrs**

A) Instructions for paper-setter

The question paper will consist of three sections A, B & C. Sections A & B will have four questions from the respective sections of the syllabus and will carry 40% marks each. Section C will have 6-12 short answer type questions which will cover the entire syllabus uniformly and will carry 20% marks in all.

B) Instructions for candidates

Candidates are required to attempt two questions each from sections A & B of the question paper and the entire section C.

SECTION-A

Program Structure: Data type, constant, variable, arithmetic expression, arithmetic operator, logical operator, input output statement, conditional statement, assignment statements, Header files & library files.

Control Structures: Introduction, Decision making with IF – statement, IF – Else and Nested IF, While and do-while, for loop, Break and switch statements, continue statements.

Functions: Introduction to functions, Global and Local Variables, Function Declaration, Standard functions, Parameters and Parameter Passing, Call – by value/reference, Recursion.

SECTION-B

Arrays: Introduction to Arrays, Array Declaration and Initialization, Single and Multidimensional Array, Arrays of characters.

Pointers: Introduction to Pointers, Address operator and pointers, Declaring and Initializing pointers, Assignment through pointers, Pointers and Arrays.

Strings: Introduction, Declaring and Initializing string variables, Reading and writing strings, String handling functions, Array of strings.

Files: Introduction, File reading/writing in different modes, File manipulation using standard function types

Text Book:

1.   Programming in C by E. Balagurusamy

Reference Books:

1.   Let us C by Yashwant Kanitkar
2.   Programming in C by Kernighan & Ritchie

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Common Syllabus Supplied by Department of Punjabi, Punjabi University, Patiala.

BCM-204: Software LAB -II (Programming in C)

Maximum Marks: 60 **Maximum Times: 3 Hrs**

Min Pass Marks: 35% **Lectures to be delivered: 40-60 Hours**

This laboratory course will comprise of exercises to supplement what is learnt under Paper BCM-202: Programming in C**.**

B.SC. (COMPUTER MAINTENANCE) PART II (SEMESTER IV)

2018-19, 2019-20 and 2020-21 Session

CODE	TITLE OF PAPER	MAXIMUM MARKS			
		UNIVERSITY EXAMINATION	CONTINOUS ASSESSMENT	TOTAL MARKS	TOTAL TIME ALLOWED
BCM-205	Linux	70	30	100	3 Hrs
BCM-206	Microprocessors – I	70	30	100	3 Hrs.
BCM-207	Hardware Lab – II (Microprocessor)	70	30	100	3 Hrs.
BCM-208	Software Lab – III (Linux)	60	40	100	3 Hrs.
BCM-209	Environmental and Road Safety Awarness **(Qualifying Paper)**	100	-	100	3 Hrs.
	Total	**270**	**130**	**400**	

Note:

1. The breakup of marks for Software Lab will be as under:
   i.   Lab record   15 Marks
   ii. Viva Voce   15 Marks
   iii. Program Development and Execution   30 Marks

2. **T**he breakup of marks for internal assessment for theory papers will be as under :
   i.   One or two tests out of which minimum one best will be considered   15 Marks
   ii. Assignment/Quizzes   7.5 Marks
   iii. Attendance, Class Participation and Behavior   7.5Marks

BCM -205: LINUX
Maximum Marks: 70   **Maximum Time: 3 Hrs**
Min Pass Marks: 35%   **Lectures to be delivered: 40-55 Hrs**

A) Instructions for paper-setter

The question paper will consist of three sections A, B & C. Sections A & B will have four questions from the respective sections of the syllabus and will carry 40% marks each. Section C will have 6-12 short answer type questions which will cover the entire syllabus uniformly and will carry 20% marks in all.

B) Instructions for candidates

Candidates are required to attempt two question each from sections A & B of the question paper and the entire section C .

SECTION-A

Planning the Implementation: The purpose of the Machine, The Required Hardware, The Require Software allocation of Storage space, The Different Licensing Schemes, the basic Services, Comparing and selecting a Distribution, Compare Linux to other Operating system, The Linux Kernel Version Numbers obtaining Software. Resources for Maintenance and Operation, Advantage of Linux.

Installing Red Hat Linux: Starting the Red Hat Linux installer, Beginning the installation, Installation type, Disk partitioning setup, Disk setup, Boot loader configuration, Account configuration, Installing packages, Graphical interface configuration, Finishing first run configuration.

Navigating Linux at the Console: Understanding virtual consoles, Logging in a virtual console, working with the file system, Linux file system, Home directory, Current working directory, manipulating files and directories, Understanding permissions. Shutdown, reboot system.

SECTION-B

Making the console work for you: Creating, Editing and Saving text files using vi, vi modes, inserting text, Quitting vi, moving the cursor, deleting text, copying and moving text, searching and replacing text, Using emacs to create text files, Grouping files for efficient file management, Searching files and directories quickly, Using pipes, Moving between multiple open applications. Opening, editing and closing an existing file, Cutting, copying and pasting files, Duplicating a file, Renaming, Deleting items, Changing file permissions, Creating a new directory, Manipulating files using drag and drop, Working with trash contents the Standard Linux file structure.

Introducing the Red Hat Desktop: GNOME and KDE Environment, Logging in to desktop, Launching applications, Using window controls, working with multiple windows, Understanding virtual desktops, X window utilities ,changing font ,background ,managing files with GNOME and KDE .

Linux commands with their options, How linux commands work, wildcards, Shell Scripts assigning values to variable, if statement, loops, function various linux commands.

Text Book:
1. A Practical Guide to Linux Commands, Editors, and Shell Programming by: Mark   G. Sobell

Reference Book:

1.   Red   Hat   Enterprise   Linux   &   Fedora   Edition: The   Complete   Reference by Richard Petersen

BCM-206: MICROPROCESSORS – I

Maximum Marks: 70   **Maximum Time: 3 Hrs**
Min Pass Marks: 35%   **Lectures to be delivered: 40-50 Hrs**

A) Instructions for paper-setter

The question paper will consist of three sections A, B & C. Sections A & B will have four questions from the respective sections of the syllabus and will carry 40% marks each. Section C will have 6-12 short answer type questions which will cover the entire syllabus uniformly and will carry 20% marks in all.

B) Instructions for candidates

Candidates are required to attempt two questions each from sections A & B of the question paper and the entire section C.

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SECTION-A

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Introduction: Typical organization of a microcomputer system and function of its various blocks, Microprocessor, its evaluation, function and impact on modern society.

Microprocessor Architecture

Basic 8085 microprocessor architecture and its functional blocks, 8085 microprocessor IC pin outs and signals, address, data and control buses, clock signals, Instruction execution sequence & Data Flow, instruction cycles, machine cycles, and timing states, instruction timing diagrams.

Programming of 8085 microprocessor: Introduction, instruction & data formats, addressing modes, status flags, all 8085 instructions, Data transfer groups, Arithmetic group, Logical group, Branch Group, writing assembly language programs, looping, counting and indexing operations, stacks and subroutines, conditional call and return instructions, debugging programs.

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SECTION-B

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8085 Interfacing and Interrupts:
Bus interfacing concepts, timing for the execution of input and output(I/O) instructions, I/O address decoding, memory and I/O interfacing, memory mapped I/O interfacing of matrix input keyboard and output display, Serial I/O lines of 8085 and the implementation asynchronous serial data communication using SOD and SID lines, interrupt structure of 8085, RST(restart) instructions, vectored interrupt, interrupt process and timing diagram of interrupt instruction execution, 8259 A interrupt controller, principles block transfer (direct memory access) techniques.

Programmable Interface and peripheral devices:
Programming and applications of 8455/8156 programmable I/O ports and timer, 8255A programmable peripheral interface, 8253/8254 programmable interval timer, 8257 direct memory access controller, 8279 programmable keyboard/display interface

Text Book:

1. Microprocessor, Architecture, Programming and Application with 8085 by Ramesh Gaonkar, John Wiley Eastern, Ltd, Publication.

Reference Book:

1. Microprocessors and interfacing by Douglas V Hall, Tata Mc-Graw Hill publication.

BCM-207: Hardware Lab – II (Microprocessors)

Maximum Marks: 60   **Maximum Times: 3 Hrs**

Min Pass Marks: 35%   **Lectures to be delivered: 40-60 Hours**

This laboratory course will comprise of exercises to supplement what is learnt under Paper BCM-206 MICROPROCESSORS – I.

Practical Assignments:

1. Addition of two 8-bit numbers.
2. Subtraction of two 8-bit numbers.
3. Addition of two 16-bit numbers.
4. Subtraction of 16-bit numbers.
5. Comparison of two 8-bit numbers.
6. Find the sum of series of n numbers.
7. Find the factorial of any number.
8. Multiplication of two 8-bit numbers.
9. Division of 8-bit numbers.
10. Find the largest of three numbers.
11. Finding a given number from a list of numbers.
12. Sorting a given list of 8-bit numbers in the ascending order.

BCM-208: Software LAB – III (Linux)

Maximum Marks: 60   **Maximum Times: 3 Hrs**

Min Pass Marks: 35%   **Lectures to be delivered: 40-60 Hours**

This laboratory course will comprise of exercises to supplement what is learnt under Paper BCM-205: LINUX.

Practical Assignments:

1. Installing Red Hat Linux.
2. Disk partitioning in Linux.
3. Installing drivers in Linux.
4. Installing Xfree86 in Linux.
5. Understanding the Linux directory system.
6. Using the vi editor.
7. Opening, creating, saving, manipulating files using vi editor.
8. Using GNOME and KDE environments.
9. Managing files using GNOME and KDE
10. Writing shell scripts.
11. Networking using Linux.

BCM 209 Environmental and Road Safety Awareness

Common Syllabus Supplied by Department of Zoology Punjabi University, Patiala.