OUTLINES OF TESTS,

SYLLABI AND COURSES OF READINGS

FOR

POST GRADUATE DIPLOMA IN COMPUTER MAINTENANCE AND NETWORKING
(Semester I & II)

Sessions 2018-19 & 2019-20

PUNJABI UNIVERSITY,

PATIALA 147002

POST GRADUATE DIPLOMA IN COMPUTER MAINTENANCE AND NETWORKING SEMESTER I (Sessions 2018-19 & 2019-20)				
Paper Code	**Title of paper**	**University Examination**	**Internal Assessment**	**Maximum Marks**
PGDCMN-1	COMPUTER FUNDAMENTALS	75	25	100
PGDCMN-2	OPERATING SYSTEMS	75	25	100
PGDCMN-3	COMPUTE NETWORK FUNDAMENTALS	75	25	100
PGDCMN-4	SOFTWARE LAB	40	60	100
PGDCMN-5	COMPUTER NETWORKING LAB	40	60	100
		305	195	500
POST GRADUATE DIPLOMA IN COMPUTER MAINTENANCE AND NETWORKING SEMESTER II (Sessions 2018-19 & 2019-20)				
PGDCMN-6	NETWORK OPERATING SYSTEM	75	25	100
PGDCMN-7	COMPUTER PERIPHERALS AND INTERFACES	75	25	100
PGDCMN-8	COMPUTER ARCHITECTURE	75	25	100
PGDCMN-9	COMPUTER HARDWARE LAB	40	60	100
PGDCMN-10	COMPUTER MAINTENANCE LAB	40	60	100
		305	195	500

CONTINUOUS ASSESSMENT (THEORY PAPERS)

1.	Two tests will be conducted during the Semester. Both the tests will be considered for assessment.	:	60% of the marks allotted for Continuous Assessment
2.	Assignment/Quizes	:	20% of the marks allotted for Continuous Assessment
3.	Attendance	:	10% of the marks allotted for Continuous Assessment.
4.	Class Participation and behaviour	:	10% of the marks allotted for Continuous Assessment.

CONTINUOUS ASSESSMENT (PRACTICAL)

The break up of for the Continuous Assessment for the practical will be as under:

i. Two tests (60% of Total marks) 36 Marks
ii. Lab Assignments (30% of Total marks) 18 Marks
iii. Attendance/Class participation and behaviour (10 % of Total marks) 6 Marks

PGDCMN-1 : COMPUTER FUNDAMENTALS

Maximum Marks: 75 Lectures to be delivered: 40-50
Minimum Pass Marks: 35% Times Allowed: 3 Hrs

INSTRUCTIONS FOR PAPER-SETTERS

The question paper will consist of five sections A, B, C, D and E. Sections A, B, C and D will have two questions from the respective sections of the syllabus and will carry 20% marks each. Section E will have 5-10 short answer type questions which will cover the entire syllabus uniformly and will carry 20% marks in all.

INSTRUCTIONS FOR CANDIDATES

1. Candidates are required to attempt one question each from sections A, B, C and D of the question paper and the entire section E.
2. Use of non-programmable scientific calculator is allowed.

SECTION-A

Historical Evolution of Computer: Characteristics of computers, types of computers, the computer generations.
Basic Anatomy of Computers: Memory unit, input-output unit, arithmetic logic unit, control unit, central processing unit, RAM, ROM, PROM, EPROM.

SECTION-B

Number System: Non-positional and positional number systems, base conversion, fractional numbers, various operations on numbers.
Computer Codes: Computer words, characters data, weighted and non weighted, BCD, EBCDIC, ASCII, grey code.

SECTION-C

Boolean Algebra and Logic Circuits: Boolean algebra, Boolean functions, logic gates, flip-flops
Combinational Circuits: Half Adder, Full Adder, Half-Subtractor, Full-Subtractor, Multiplexers, Demultiplexers, registers and counters.

SECTION-D

Computer Software: Introduction, types of software, systems software, GUI, operating system, high level languages, assemblers, compilers, interpreters, system utilities, application packages, stages in the development of software, program testing and debugging, program documentation, concept of firmware.

BOOKS:

1. V Rajaraman, "Fundamentals of Computers", Prentice Hall of India, New Delhi, 3rd. ed.2003.
2. N Subramanium, "Introduction to Computers", Volume-1.
3. Dr. Rajesh Trehan, "A complete book on IT", Cyber Tech.

PGDCMN-2 : OPERATING SYSTEMS

Maximum Marks : 75 Lectures to be Delivered : 40-50
Minimum Pass Marks : 35% Times Allowed : 3 Hrs

SECTION-A

Introduction to operating System: Need of operating system, operating system services, Definition, Early systems
Types of operating systems: Batch processing operating system, Multiprogramming operating system, Time Sharing operating system, Multi tasking operating system, Distributed operating system, Network operating system, Real time operating system, Multi processor System and parallel processing.

SECTION-B

Disk Operating System (DOS): Booting process of DOS, Purpose of autoexec.bat and config.sys, internal commands and external commands, using wild card characters, Creating batch files, getting and setting date, time and prompt, Disk related commands-Format, Fdisk, Chkdsk, Scandisk, Defrag.

SECTION-C

Windows: GUI, Icon, Toolbar.
Working with files, closing and saving a file.
Mouse Mechanics-Click, Double click, Drag and drop method.
Installation of a new software, Control panel, Explorer, Accessories, network neighbourhood, System tools, Recycle bin, Files and Directory management under windows, Running programs.

SECTION-D

Unix: Structure of Unix, Kernel and shell, Commands of Unix, Unix file system, own file system, Electronic mail.
Vi Editor: Editing text, screen controls.
Printing and spooling.

BOOKS:

1. Andy Rathbone, "Windows for dummies", Pustak mahal, 2nd ed. 1996.
2. Stan Kelly-Bootle, "Understanding UNIX", BPB Publications (ed. 1997).
3. Silverschatz , "Operating system concepts", Pearson education India, 5th ed. 1998.

PGDCMN-3 : COMPUTER NETWORK FUNDAMENTALS

Maximum Marks: 75 Lectures to be Delivered: 40-50 Minimum Pass Marks: 35% Times Allowed: 3 Hrs

INSTRUCTIONS FOR PAPER-SETTERS

The question paper will consist of five sections A, B, C, D and E. Sections A, B, C and D will have two questions from the respective sections of the syllabus and will carry 20% marks each. Section E will have 5-10 short answer type questions which will cover the entire syllabus uniformly and will carry 20% marks in all.

INSTRUCTIONS FOR CANDIDATES

1. Candidates are required to attempt one question each from sections A, B, C and D of the question paper and the entire section E.
2. Use of non-programmable scientific calculator is allowed.

SECTION-A

Computer Networks: definition, need for computer networks and advantages, Hardware, Software Users.
Reference Models: OSI Reference Model, TCP/IP reference Model.
Types of Networks: LAN, WAN, MAN, and value added networks , their features, network topologies.

SECTION-B

Transmission media: magnetic media, twisted pair, co-axial cable, radio transmission, line of sight transmission and communication satellite, wireless transmission.
Switching: Virtual Circuits versus Circuit switching.

SECTION-C

Introduction to Internet: Relays, Repeaters, Bridges, Routers, Gateways.
Internet working: How networks differ, concatenated virtual circuits, connectionless internetworking, firewalls, internet architecture.
Applications of Internet: Email, WWW and multimedia, FTP: introduction, data transfer and distributed computation.
WWW: the client side, the server side, web browser, net surfing.

SECTION D

Network layer: routing algorithms, Distance Vector Routing and Link State, congestion control algorithms, IP Addressing.
Transport layer: Elements of Transport Protocols UDP, TCP.

BOOKS:

I. Andrew S.Tanenbaum, "Computer Networks", Pearson Education India. (4^{th} ed. 2003).
2. Douglas E.Comer, "Computer Networks and Internets", Pearson Education (2^{nd} ed.2001).
3. Achute S Godbole, "Data Communications and Networks", Tata Mcgraw Hill, (1st ed.2003).

PGDCMN-4 : SOFTWARE LAB

Maximum Marks: 100* Practical Units to be conducted: 40-50
Minimum Pass Marks: 35% Time Allotted: 3 Hrs

The Lab will consist of exercises on the following topics:

MS DOS: Booting under DOS, Internal and External Commands of DOS.

WINDOWS: Windows Concepts, Features, Windows Structure, Desktop, Taskbar, Start Menu, My Computer, Recycle Bin, Windows Accessories. System Tools, communication, Sharing Information between Programs.

UNIX: Booting Process, Kernel, Shell, Directory structure and commands, vi editor.

MS-OFFICE: Use of MS-Word, MS-Excel, MS-Power-point and MS-Access

*Maximum Marks for continuous assessment : 60
Maximum Marks for University examination : 40

PGDCMN -5 : COMPUTER NETWORKING LAB

Maximum Marks: 100* Practical Units to be conducted: 40-50
Minimum Pass Marks: 35% Time Allotted: 3 Hrs

The Lab will consist of exercises on the following topics:

1. Installing Windows 2000/NT Server.

2. To implement topologies studied in computer networking theory paper.

3. Hardware and Software troubleshooting of Windows Operating System.

4. POST and Disk diagnostic testing, Study of Antivirus and its utilities.

*Maximum Marks for continuous assessment : 60
Maximum Marks for University examination : 40

PGDCMN-6 : NETWORK OPERATING SYSTEM

Maximum Marks: 75 Lectures to be delivered: 40-50
Minimum Pass Marks: 35% Times Allowed: 3 Hrs

INSTRUCTIONS FOR PAPER-SETTERS

The question paper will consist of five sections A, B, C, D and E. Sections A, B, C and D will have two questions from the respective sections of the syllabus and will carry 20% marks each. Section E will have 5-10 short answer type questions which will cover the entire syllabus uniformly and will carry 20% marks in all.

INSTRUCTIONS FOR CANDIDATES

1. Candidates are required to attempt one question each from sections A, B , C and D of the question paper and the entire section E.
2. Use of non-programmable scientific calculator is allowed.

SECTION A

Introduction to Window 2000: Window 2000 OS, Windows 2000: User interface, Architecture, concepts of workgroup, Domains and Active Directory, Overview of active directory: Feature, Structure and Implementation.

Installation and Configuration of Windows 2000: Control Panel of Windows Directory 2000: over view and different folder option. Working with file system and disks: File systems, Disks and Volumes, Disk Management, Recovering from disk failure. Installing and Configuring DNS and Active Directory.

SECTION B

Managing and Securing Resources: Administering and Securing Active Directory, Managing users ang groups, overview of policies in Windows 2000, Managing group policy. Managing file and folder attributes, Managing shared folders, Configuring and managing distributed file system, Managing NTFS file and folder security, configuring and monitoring disk quotas. Managing Printing, Auditing and Security: Managing Auditing, Monitoring and analysing security events, Security configuration and Analysis, Backup and recovery.

SECTION C

Network and Interoperability: creating and configuring network and dialup connections, configuring TCP/IP, Installing and configuring DHCP server, NetBIOS Name resolution, Routing TCP/IP, Configuring TCP/IP packet filters, Configuring and troubleshooting IPsec. Managing Remote Access: Overview, Enabling, Configuring and Monitoring of Remote Access. Using remote access policies. Managing Web Service, Managing Certificate Services, Managing Terminal Services.

SECTION D

Monitoring Performance: Optimizing and troubleshooting performance. Overviews of Active Directory Replication, Managing components affect replication, Managing Active Directory replication and performance.

Internet and Internet Server: Installation, Configuring and Management of IIS Web Server and Mail Server.

BOOKS :

1 Alan R. Carter: MCSE 4 in 1 study system, Wiley Dremtech, 2003.

PGDCMN -7 : COMPUTER PERIPHERALS AND INTERFACES

Maximum Marks: 75
Minimum Pass Marks:35%

Lectures to be delivered: 40-50
Times Allowed: 3 Hrs

INSTRUCTIONS FOR PAPER-SETTERS

The question paper will consist of five sections A, B, C, D and E. Sections A, B, C and D will have two questions from the respective sections of the syllabus and will carry 20% marks each. Section E will have 5-10 short answer type questions which will cover the entire syllabus uniformly and will carry 20% marks in all.

INSTRUCTIONS FOR CANDIDATES

1. Candidates are required to attempt one question each from sections A, B, C and D of the question paper and the entire section E.
2. Use of non-programmable scientific calculator is allowed.

SECTION-A

Input-Output Devices: Punched hole devices, magnetic media devices, printers, keyboards, scanners, mouse, plotters, voice recognition and response devices, off-line data entry devices.

SECTION-B

Display Devices: Overview of Raster Scan and vector graphics. CRT and TFT Monitors, Plasma Screens and their working. Elementary principles of scanning and picture formation Video signal.

SECTION-C

Other Devices: Construction and working of CD-ROM, DVD, USB Drives, Serial Port Devices. Internal and External Modems their working and Common fault diagnosis, UPS and its types.

SECTION D

Secondary Memories: Working Principle of hard Disk Drives, Common faults and their diagnosis, Alignment of hard disk head, SCSI and IDE interfaces.

Books

1. Luce Thom, Computer Hardware ,System Software and Architecture, Tata McGraw Hills.

2. Winn L.Asch, Hardware Bible, BPB Publications.

PGDCMN-8 : COMPUTER ARCHITECTURE

Maximum Marks: 75 Lectures to be delivered: 40-50
Minimum Pass Marks: 35% Times Allowed: 3 Hrs

INSTRUCTIONS FOR PAPER-SETTERS

The question paper will consist of five sections A, B, C, D and E. Sections A, B, C and D will have two questions from the respective sections of the syllabus and will carry 20% marks each. Section E will have 5-10 short answer type questions which will cover the entire syllabus uniformly and will carry 20% marks in all.

INSTRUCTIONS FOR CANDIDATES

1. Candidates are required to attempt one question each from sections A, B, C and D of the question paper and the entire section E.
2. Use of non-programmable scientific calculator is allowed.

SECTION A

Basic computer: Register Transfer language & operations, Various organisations and design Arithmetic, Logic & Shift micro-operations, instruction codes, computer registers, instructions, timing & control, instruction cycle, design of a complete basic computer & it's working.

SECTION B

Programming & Controlling: Machine & Assembly Language, Hardwired & the basic computer Micro-programmed control, Design of control unit.
CPU Architecture: General registers & stack organization, instruction formats and addressing modes, ALU & Control unit architecture.

SECTION C

Memory Organization: Memory hierarchy, main, auxiliary, cache memory, virtual memory paging and segmentation.

SECTION D

I/O Organization: Peripheral Devices, input-output interface, Modes of data transfer programmed & interrupt initiated I/O, DMA, I/O Processors.

Books:

1. Morris Mano : Computer System Architecture ,PHI
2. Hayes J .P : Computer Architecture & Organisation, McGraw Hill.
3. Stone: Introduction to computer architecture: Galgotia
4. Tanenbaum: Structured Computer Organisation, PHI
5. Malvino, Brown: Digital Computer Electronics, TMH

PGDCMN-9 : COMPUTER HARDWARE LAB

Maximum Marks: 100* Practical Units to be conducted: 40-50
Minimum Pass Marks: 35% Time Allotted: 3 Hrs

The Lab will consist of exercises on the following topics:

1. To study the truth table of various logic gates.
2. To study the truth table of half and full adders.
3. To study truth tables of various Flip Flops.
4. To verify DeMorgans Law.

*Maximum Marks for continuous assessment : 60
Maximum Marks for University examination : 40

PGDCMN-10 : COMPUTER MAINTENANCE LAB

Maximum Marks: 100* Practical Units to be conducted: 40-50
Minimum Pass Marks: 35% Time Allotted: 3 Hrs

The Lab will consist of exercises on the following topics:

1. Common fault diagnosis of Input devices.
2. Devices to be connected at USB.
3. Common Faults in Modems and their solution.
3. Running and Applying System tools for Scheduled tasks, Disk Defragmentation.
4. Hard Disk Fault Checking.
5. Maintenance of UPS.

*Maximum Marks for continuous assessment : 60
Maximum Marks for University examination : 40