

STUDENT ASSIGNMENTS (SESSION 2025-26)
Certificate in Computer Hardware and Network Technology
(Distance Mode)

Guidelines to submit Assignments

The students are required to read carefully and follow the instructions given below:

1. Submission of one complete Assignment in each paper of the program is compulsory.
2. Completed Handwritten Assignments on **A4** size papers in a **PDF** format need to be submitted on Google Classroom on or before the due date
3. Write Following details as required on the cover page of each Assignment.

Roll No.:

Name of Student.:

Father's Name.:

Contact No.:

Course.:

Subject Code.:

Subject Title.:

4. For Assignments Submitted after due date mentioned, a late fee of Rs. 100/- per assignment will be payable through Demand Draft in favor of Jamia Millia Islamia, Payable at New Delhi
5. For ex-students who failed to submit assignments during the course of the program are required to submit Rs. 200/- per assignment payable through Demand Draft in favor of Jamia Millia Islamia, Payable at New Delhi.
6. Please go through your Program Guide carefully for further details.
7. Last Date for Assignment Submission is **30-April-2026**
8. All Students must upload PDF of Assignment in the Correct Folder (Assignment uploaded in Wrong Folder will not be evaluated and marked as ZERO)
9. Name of uploaded PDF (for each assignment) must be your **RollNo** followed by **SubjectCode**.
(Example, D25CHNT001_CCH101)
10. Link to upload Assignments:

<https://drive.google.com/drive/u/1/folders/14O4u5h0e03MlfTK0e8FOKobnwsX430cF>

Course Title:	Operating System	Course Code:	CCH-101
Session:	2025-26	Max. Marks	30

Note: Attempt any **three** of the following five questions. All questions carry equal marks.

Q.No.	Question	Marks								
1.	a) Define Operating System. Explain the evolution of Operating Systems from serial processing to modern multiprogramming systems. b) Explain basic UNIX shell commands with syntax and examples: <ol style="list-style-type: none"> i. ls, pwd, cd ii. cp, mv, rm iii. mkdir, rmdir iv. cat, grep 	5 5								
2.	a) Explain scheduling algorithms with examples: <ol style="list-style-type: none"> i. FCFS ii. SJF iii. Round Robin b) Explain Deadlock: <ol style="list-style-type: none"> i. Necessary conditions ii. Deadlock prevention iii. Deadlock avoidance iv. Deadlock detection 	5 5								
3.	a) Explain different types of memory: <ol style="list-style-type: none"> i. Serial access ii. Random access iii. Semi-random access b) Explain paging and compare it with segmentation.	5 5								
4.	a) Explain disk management and disk scheduling techniques. b) Explain file allocation methods: <ol style="list-style-type: none"> i. Contiguous allocation ii. Linked allocation iii. Indexed allocation 	5 5								
5.	a) The following processes arrive at time 0 ms: <table border="1" style="margin-left: 40px;"> <thead> <tr> <th>Process</th> <th>Burst Time (ms)</th> </tr> </thead> <tbody> <tr> <td>P1</td> <td>10</td> </tr> <tr> <td>P2</td> <td>5</td> </tr> <tr> <td>P3</td> <td>8</td> </tr> </tbody> </table> <p style="margin-left: 40px;">Time Quantum = 4 ms, Using Round Robin Scheduling:</p> <ol style="list-style-type: none"> i. Draw the Gantt Chart. ii. Calculate Waiting Time of each process. iii. Calculate Turnaround Time of each process. iv. Find the Average Waiting Time. b) A disk drive has 200 cylinders numbered from 0 to 199. <ul style="list-style-type: none"> • The disk request queue is: 98, 183, 37, 122, 14, 124, 65, 67 • Initial head position = 53 Using Shortest Seek Time First (SSTF) algorithm: <ol style="list-style-type: none"> i. Show the order in which the requests will be serviced. ii. Calculate the total head movement. iii. Compare briefly with FCFS in terms of performance. 	Process	Burst Time (ms)	P1	10	P2	5	P3	8	5 5
Process	Burst Time (ms)									
P1	10									
P2	5									
P3	8									

Course Title:	Fundamentals of Computer and Network	Course Code:	CCH102
Session:	2025-26	Max. Marks	30

Note: Attempt any **three** of the following five questions. All questions carry equal marks.

Q.No.	Question	Marks
1.	a) Explain the main components of the system board (motherboard). Describe the role of the CPU, chipset, ROM BIOS, RAM, buses, and expansion slots in a computer system.	5
	b) Describe different types of computer memory. Explain cache memory, primary memory, and secondary memory with their advantages and uses.	5
2.	a) Differentiate between ROM and RAM. Explain physical memory and its importance in computer performance.	5
	b) Describe different types of printers. Explain the working principles of impact and non-impact printers with suitable examples.	5
3.	a) Explain the working of a hard disk and discuss IDE, EIDE, and SCSI technologies. Also describe logical organization, formatting, and fragmentation.	5
	b) What is computer networking? Explain the basic components of a network, such as NIC, modem, router, switch, and communication media.	5
4.	a) Describe the working and uses of keyboard, pointing devices, monitor, sound card, scanner, digital camera, and video capture card.	5
	b) Explain different types of software. Differentiate between system software, application software, and utility software with examples.	5
5.	a) Explain and compare LAN, MAN, and WAN. Also, describe common network topologies with diagrams.	5
	b) Explain the concept of the Internet and World Wide Web (WWW). Describe the services provided by the internet, such as email, FTP, and web browsing.	5

Course Title:	Computer Network	Course Code:	CCH-103
Session:	2025-26	Max. Marks	30

Note: Attempt any **three** of the following five questions. All questions carry equal marks.

Q. No.	Question	Marks
1.	a) Explain different transmission media used in data communication. Compare guided and unguided media with suitable examples.	5
	b) Differentiate between packet switching and circuit switching. Also, explain any two-channel allocation techniques: <ul style="list-style-type: none"> i. CDMA ii. TDMA iii. FDMA iv. WDMA 	5

2.	a) Explain the OSI reference model. Describe in detail the TCP/IP protocol suite with a neat diagram.	5
	b) Write short notes on <ul style="list-style-type: none"> i. Ethernet Technology ii. FDDI iii. IEEE 802 standards with their key characteristics 	5
3.	a) Define IP addressing and explain its purpose in computer networks. Also differentiate IPV4 and IPV6.	5
	b) Describe the different classes of IP addresses along with their address ranges and default subnet masks. Change the following IPv4 addresses from binary notation to dotted-decimal notation. <ul style="list-style-type: none"> i. 10000001 00001011 00001011 11101111 ii. 11000001 10000011 00011011 11111111 	5
4.	a) Explain the address resolution problem. Describe how ARP maps an Internet address to a physical address.	5
	b) Discuss ARP protocol format and implementation. How does RARP determine an Internet address at system startup?	5
5.	a) Explain BOOTP and DHCP. Describe the DHCP message format and IP address assignment process.	5
	b) Explain the working of FTP and TFTP. Briefly discuss SMTP, MIME, and domain name mapping in TCP/IP.	5

Course Title:	Network Operating System	Course Code:	CCH-104
Session:	2025-26	Max. Marks	30

Note: Attempt any **three** of the following five questions. All questions carry equal marks.

Q.No.	Question	Marks
1.	a) Explain the architecture and main features of Unix/Linux operating systems. Discuss the differences between Unix/Linux and Windows Server operating systems.	5
	b) A server has 8 GB RAM, out of which 2.5 GB is used by the operating system and 1.8 GB is used by running services. <ol style="list-style-type: none"> 1) Calculate the remaining free memory available for applications. 2) If an application requires 1.2 GB, determine whether the server can run the application without exceeding memory capacity. 	5
2.	a) Define Open Source Operating Systems. Explain their advantages in terms of cost, flexibility, and security. Give examples such as Linux, Ubuntu, and CentOS.	5
	b) A system administrator needs to install Linux on 40 computers in a lab. <ul style="list-style-type: none"> • Proprietary OS license cost = ₹4,500 per system • Linux (open source) license cost = ₹0 <ol style="list-style-type: none"> 1) Calculate the total cost if proprietary OS is used. 	5

	2) Determine the cost savings when Linux is used instead.	
3.	<p>a) Explain the steps involved in installing Linux as a workstation. Include disk partitioning, boot loader installation, and package selection.</p> <p>b) During Linux installation, a 500 GB hard disk is partitioned as follows:</p> <ul style="list-style-type: none"> • Root partition = 120 GB • Home partition = 250 GB • Swap partition = 16 GB <ol style="list-style-type: none"> 1. Calculate the remaining unallocated disk space. 2. If 20 GB additional space is later allocated to the root partition, determine the new root partition size.. 	5 5
4.	<p>a) Explain the concept of Domain Controller in Windows Server and the role of Active Directory in managing users and resources.</p> <p>b) An organization has 120 users and each user requires 250 MB storage on the server.</p> <ol style="list-style-type: none"> 1. Calculate the total storage required for all users. 2. If the server has 50 GB storage allocated for user data, determine whether the storage is sufficient. 	5 5
5.	<p>a) Explain the concept of system configuration and performance tuning. Discuss tools used for monitoring system performance in Linux (e.g., top, htop, vmstat).</p> <p>b) A server processes 1,200 requests in 10 minutes.</p> <ol style="list-style-type: none"> 1. Calculate the average number of requests processed per minute. 2. If performance tuning increases processing capacity by 20%, calculate the new number of requests processed per minute. 	5 5

Course Title:	Troubleshooting	Course Code:	CCH-105
Session:	2025-26	Max. Marks	30

Note: Attempt any **three** of the following five questions. All questions carry equal marks.

Q.No.	Question	Marks
1.	<p>a) Explain some of the memory related errors and their troubleshooting.</p> <p>b) Discuss the uses of device manager</p>	5 5

2.	<p>a) What do you mean by hardware and network failure? Write TWO categories of fault.</p> <p>b) Define system maintenance.</p>	<p>5 5</p>
3.	<p>a) Discuss the differentiate between troubleshooting and testing .</p> <p>b) Write short note on disk fragmentation.</p>	<p>5 5</p>
4.	<p>a) What are the steps to cleanup windows based computer?</p> <p>b) What do you mean by malicious software? Discuss about the Worms, Trojan horse, Ransom-ware and Logic Bombs.</p>	<p>5 5</p>
5.	<p>a) Suggest the name of any FIVE application software.</p> <p>b) Write short note on:</p> <p>(a) Error, Fault, Failure (b) DBMS (c) RAM & ROM</p> <p>(d) Debugging</p>	<p>5 5</p>