STUDENT ASSIGNMENTS (SESSION 2024-25)

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 programme 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 your Name, Father's Name and Roll Number as required on the cover page of each Assignment.
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 programme 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 Programme Guide carefully for further details.
7. Last Date for Assignment Submission is **31-May.-2025**
8. **Last Date of Submitting Hard copy of Assignment is 15-Jun.-2025**
9. **Link for Google Class Room:**

   https://classroom.google.com/c/NzMyOTMzNTg3NjUz?cjc=bitblth

   Assignment Name Must be **CODE_ROLLNO** for example **CCH101_D23CIT001**

NOTE: Attempt any **THREE** questions from each Assignment and Each Question carry **10** marks. Total Marks for each Assignment is 30.

CCH-101 Operating System

Q.No.	Question.	Marks
1	**Banker's Algorithm (Safe/Unsafe State): Consider the following system with 3 types of resources (A, B, and C) and 5 processes. The current allocation and maximum requirements are given below:**	10
	Using the Banker's Algorithm, determine if the system is in a safe state.	
2	**First-Come, First-Served (FCFS) Scheduling: Consider the following set of processes with their arrival and burst times:**	10

Process	Allocation	Maximum	Need
P1	(0, 1, 2)	(1, 2, 3)	(1, 1, 1)
P2	(2, 1, 1)	(3, 2, 2)	(1, 1, 1)
P3	(1, 0, 1)	(2, 1, 2)	(1, 1, 1)
P4	(0, 0, 2)	(2, 1, 2)	(2, 1, 0)
P5	(2, 1, 0)	(3, 2, 2)	(1, 1, 2)

Process	Arrival Time	Burst Time
P1	0	6
P2	1	8
P3	2	7
P4	3	3

Calculate the waiting time, turnaround time, and average waiting time for the FCFS scheduling algorithm.

3

The initial disk head position is at 50. The following disk I/O requests are made:

98, 183, 37, 122, 14, 124, 65, 67

The disk has a total of 200 tracks. The head is moving towards the higher-numbered tracks initially.

Using the FCFS, SCAN, C-LOOK algorithm, calculate:

- **The total head movement.**
- **The order of request servicing.**
- **The average seek time.**

10

4

a) List and describe the function of the following basic Linux commands:

- `ls`, `cp`, `mv`, `rm`, `touch`, `cat`, `echo`, `pwd`, `man`

b) Create a directory called backup. Inside backup, create three subdirectories named documents, images, and music. Move a few files of your choice into each subdirectory and list the contents.

10

5

Explain Paging and Segmentation in detail with one example of each.

10

CCH-102 Fundamentals of Computer & Network

Q.No.	Question.	Marks
1	Differentiate between ROM and RAM in terms of functionality and role in a computer system.	10
2	What are the different types of buses in a computer system?	10
3	Discuss the different types of ports used in I/O devices (e.g., Parallel, COM, USB).	10
4	What are the different types of computer networks, and how do they differ from each other?	10
5	Discuss the hardware and software components required to build a computer network.	10

CCH-103 Computer Network

Q.No.	Question.	Marks
1	Explain the concept of data transmission and describe the different types of transmission media used for data communication.	10
2	Compare and contrast packet switching and circuit switching.	10
3	Explain the TCP/IP model and its relationship with the OSI model.	10
4	Discuss the different classes of IP addresses (Class A, B, C, D, and E).	10
5	What is Dynamic Host Configuration Protocol (DHCP), and how does it help in IP address assignment?	10

CCH-104 Network Operating System

Q.No.	Question.	Marks
1	What are open-source systems, and how do they differ from proprietary systems?	10
2	What is cryptography, and why is it important in system security?	10
3	What are the key responsibilities of a system administrator?	10
4	Explain how digital signatures work and their role in verifying the integrity and authenticity of data.	10
5	Explain the installation process of Unix/Linux on a workstation	10

CCH-105 Trouble Shooting

Q.No.	Question.	Marks
1	Discuss the various types of hardware faults that may occur in a system.	10
2	Describe common errors and failures that can occur with hardware components such as hard disks, CD drives, and network cards.	10
3	How do computer viruses impact system performance, and what are the methods of debugging virus-related issues?	10
4	Explain the role of the device manager in system maintenance and troubleshooting.	10
5	What is the difference between preventive and corrective maintenance?	10