BCACACN 403

Fourth Semester B.C.A. Degree Examination, July/August 2023
(NEP – 2020)
(2022 – 23 Batch Onwards)
OPERATING SYSTEM CONCEPTS
(DSCC)

Time : 2 Hours

Max. Marks : 60

Note : Answer **any six** questions from Part – **A** and **any one full** question from **each** Unit in Part – **B**.

PART – A

1. a) Define an Operating System.   (6×2=12)

   b) Give any four File Types.

   c) What are physical and logical addresses ?

   d) Define thrashing and virtual memory.

   e) What is PCB ? List its components.

   f) Define preemptive scheduling and non-preemptive scheduling.

   g) What is semaphore ?

   h) What is a wait for graph ? Give an example.

PART – B

Unit – I

2. a) Explain the different services of an Operating System.

   b) Explain any two Directory Structures.   (6+6)

3. a) Write a note on File System Management and Memory Management.

   b) Explain types of System call.   (6+6)

Unit – II

4. a) Explain segmentation with a neat diagram.

    b) Consider the reference string 7, 0, 1, 2, 0, 3, 0, 4, 2, 3, 0, 3, 2, 1, 2, 0, 1, 7, 0, 1. For memory with 3 frames, give the steps in the optimal and LRU page replacement algorithms. **(6+6)**

5. a) Explain contiguous memory allocation.

    b) Explain paging memory management with an example. **(6+6)**

Unit – III

6. a) Consider the following set of processes that arrive at time 0 with the length of the CPU-burst time given in milliseconds.

Process	CPU Burst Time
P1	6
P2	8
P3	7
P4	3

   Find the average turnaround and waiting time. And also draw the Gantt chart using SJF.

    b) Write a note on Inter Process Communication (IPC). **(6+6)**

7. a) Explain Round Robin Scheduling algorithm with an example.

    b) What is Process ? Explain Process State transition diagram. **(6+6)**

Unit – IV

8. a) Explain how to recover from Deadlock.

    b) What is Critical Section ? What are the requirements for a solution to Critical Section problem ? **(6+6)**

9. a) What is deadlock ? Explain the necessary conditions to deadlock to occur.

    b) What is Readers-Writers problem ? Explain. **(6+6)**