OPERATING SYSTEM MCA II SEM (OS)

IMPORTANT QUESTIONS

Unit- I

1 Discuss the various architecture used in organizing the computer -system in detail.

2. Explain the different services that an operating system provides.

3. What are system calls ? Briefly explain various types of systems calls .

4. Explain the purpose and importance of system calls and discuss the calls related to device management and communication in brief.

5. Explain the layered structure of an operating system by giving typical operations and the objects that are operated in each layer.

Unit II

1. Discuss the three common ways of establishing relationship between user and kernel threads.

2. With a neat diagram, explain components of PCB.

3. Consider the following set of processes, with the length of the CPU burst given in milliseconds. The processes are assumed to have arrived in the order P1, P2, P3 all at time 0.

Process **Burst time**

P1---------- 24

P2---------- 3

P3---------- 3

4. Draw Grant charts and find the average turnaround time and waiting time for the jobs using FCFS and RR (time quantum = 4 milliseconds) scheduling algorithms.

5. Consider the following set of processes, with the length of the CPU burst given in milliseconds:

Process	**Burst time**	**Priority**
P1	2	2
P2	1	1
P3	8	4
P4	4	2
P5	5	3

The processes are assumed to have arrived in the order P 1, P 2, P 3, P 4 , P 5, all at time 0. (a) Draw four Gantt charts that illustrate the execution of these processes using the following scheduling algorithms: FCFS, SJF, non -preemptive priority (a larger priority number implies a

higher priority) and RR (quantum = 2). (b) What is the turnaround time of each process for each of the scheduling algorithms in part a? (c) What is the waiting time of each process for each of these scheduling algorithms? (d) Which of the algorithms results in the minimum average waiting time (over all processes)?

UNIT III

1. What do you mean by a binary semaphore and a counting semaphore? Along with the necessary 'C ' struct, explain the implementation of wait () and signal () semaphore operations.
2. Define mutual exclusion and critical section. Write the software solution for two process synchronization.
3. Describe the semaphore. How the semaphores help in the process synchronization?
4. Draw the schematic view of monitors and model the solution for dining philosopher's problem

UNIT IV

1. Discuss the steps involved in handling page faults with diagram. (b) Explain in detail LRU page replacement algorithms with an example. (c) Consider the page reference string: 1, 2, 3, 4, 1, 2, 5, 1, 2, 3, 4, 5. How many page faults would occur for the following replacement algorithms, assuming four frames? (i) LRU replacement. (ii) FIFO replacement. (iii) Optimal replacement.
2. Explain about the RAID structure in disk management with various RAID levels of . Organization in detail.
3. Difference between stable storage and tertiary storage
4. Describe the details of cryptography and how to use in computer security with an example.
5. Explain advantages and disadvantages of following file allocation methods:

(a) Contiguous allocation.

(b) Linked allocation.

Unit V

1. Discuss file allocation concepts with neat diagrams.
2. Explain file free -space management with neat sketch.
3. List out the different file directory structure, file allocation methods and do the comparison analysis.
4. Compare and contrast paging and segmentation. Explain the address translation schemes of these memory management schemes with neat sketch
5. List out disk scheduling algorithms and explain any one with diagram.