

MCA/D08
OPERATING SYSTEMS
MCA -304

Time : 3 Hours

MM:50

Note:- Attempt Five questions in all, selecting One question from each unit. All questions carry equal marks.

UNIT-I

- 1(a) Describe the functions of operating system as a resource manger.
- (b) What are systems calls? How are they categorized?

- 2(a) Define a file and explain the basic function of file system.
- (b) Name the various methods used for accessing the file. Explain the following methods used for it:
 - (i) Multiple key records
 - (ii) Relational in triple structured records.

- 3 Write short notes on the following on any three:
 - (i) Interrupt
 - (ii) Real time system characteristics of operating system
 - (iii) Distributed System
 - (iv) Describe the functions of operating system as a resource manager.

UNIT-II

- 4(a) Explain the terms process states, process hierarchies and process table.
- (b) Scheduling Criteria

- 5(a) Discuss the internal and external fragmentation of memory. How is it removed? Explain.
- (b) Explain the following allocation algorithms:
 - (i) First Fit
 - (ii) Best Fit
 - (iii) Worst Fit

- 6 Consider the following set of process. Assumed to be arrived in the order P1, P2, P3, P4, P5 all time at time 0

Process	Burst Time (Millisecond)	Priority
P1	10	3
P2	1	1
P3	2	3
P4	1	4
P5	5	2

Draw Gantt Char for FCFS, SJF, Non Preemptive, Priority, RR(Quantum=2),
What is turn around time, waiting Time for each scheduling algorithms, and also
tell which of the scheduling algorithms is having minimal average waiting time?

- 7(a) Explain the following terms:
- (i) Thrashing
 - (ii) Swapping
 - (iii) Compaction
 - (iv) Virtual Memory
- (b) Explain the following terms:
- (i) FIFO and what is the problem associated with it
 - (ii) Optimality algorithm

UNIT-III

- 8(a) What do you mean by deadlock? Explain the various deadlock prevention, Avoidance methods with the help of suitable example.
- (b) Explain the necessary condition for dead lock.
- 9 Write short notes on following:
- (a) Process Synchronization
 - (b) File Protection
 - (c) Unix Operating System
 - (d) Differentiate among MS-Dos, MS-Window
- 10 Write short notes on following with suitable example:
- (a) Semaphores
 - (b) Inter Process Communication