

MASTER OF COMPUTER APPLICATION
Third Semester
OPERATING SYSTEM
(MCA - 303)

Duration: 3Hrs.

Full Marks: 70

Part-A (Objective) =20
Part-B (Descriptive) =50

(PART-B: Descriptive)

Duration: 2 hrs. 40 mins.

Marks: 50

Answer any four from Question no. 2 to 8
Question no. 1 is compulsory.

1. Define the following: (*any five*) (2×5=10)
 - a. Throughput
 - b. Turnaround time
 - c. Waiting time
 - d. Response time
 - e. Seek time
 - f. Latency time
 - g. Data transfer time
2. What is demand paging? What are its advantages? Explain how it affects the performance of a computer system. (10)
3. Distinguish between: (5+5=10)
 - a. Physical Address and Logical address.
 - b. Short Term and long term scheduler.
4. Consider the following page reference string: 1,2,3,4,2,1,5,6,2,1,2,3,7,6,3,2,1,2,3,6. Find number of page faults for the following page replacement algorithms assuming three frames. (10)
 - a. LRU
 - b. FIFO
 - c. Optimal

5. Explain the merits & demerits of using hierarchical directory system. Explain the basic structure of the single level & two level directory systems. (6+4=10)
6. Consider the following snapshot below and compute Average Turnaround Time and Average Waiting Time using (i) Round Robin (ii)Preemptive Priority process Scheduling Algorithm take time quantum as 3ms. (10)

Process	Burst Time	Arrival Time	Priority
P1	10	0	1
P2	5	2	2
P3	4	3	3
P4	5	5	4

7. Define critical section problem. Explain the requirements that a solution to a critical section problem must have. Explain Dining Philosopher's problem with solution. (2+5+3=10)
8. Explain life cycle of a process with a neat diagram. What is operating system and what are the services of Operating system? (5+5=10)
