

MCA.I/03.22.005

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**B**

**MCA DEGREE FIRST SEMESTER EXAMINATION, FEBRUARY 2022**

**20-382-0105 OPERATING SYSTEM**

**(Regular)**

**Time : 3 Hours**

**Maximum Marks:50**

**Write any five questions.**

**(Each question carries 10 Marks)**

1. (a) Why long-term schedulers should select a good process mix of I/O-bound and CPU-bound processes?  
(5Marks)
- (b) Compare and contrast different types of process schedulers.  
(5Marks)
2. Explain two phases of a Two Phase Commit protocol.  
(10 Marks)
3. Describe about the process attributes and process states in an operating system in detail.  
(10Marks)
4. Using FIFO,OPT and LRU page replacement algorithms, find out the number of page faults for the reference string 3,1,4,6,1,0,5,4,3,5,0,1,6 by considering initially the number of available free frames as four and suggest the best replacement algorithm among the three. Further explain Belady's anomaly.  
(10 Marks)
5. What are the major activities of an operating system with regard to file management? Explain them briefly with their supporting system calls.  
(10Marks)

6. Illustrate Shortest Job First Scheduling and Round Robin Scheduling Algorithm. Consider the following set of processes, with the length of the CPU burst given in milliseconds:

P1	10	3
P2	1	1
P3	2	2
P4	1	4
P5	5	5

Which algorithm among SJF and RR with time quantum = 2 milliseconds would give the minimum average waiting time for this set of processes?

(10Marks)

7. List and explain the conditions that lead to a dead lock with suitable examples.

(10Marks)

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