

**232/005**

**M.C.A. EXAMINATION**

**May 2000**

**MCA 105**

**OPERATING SYSTEMS**

*Time : 3 Hours*

*Maximum Marks : 80*

**Note :** Attempt any *Five* questions. All questions carry equal marks.

1. What are the main objectives of an operating system ?  
What type of services an operating system should provide ?
2. Write short notes on the following :
  - (a) Linker and Loader :
  - (b) Mutual Exclusion
  - (c) Dispatcher
  - (d) Associative Memory.
3. (a) What is Paging ? Explain it in detail.  
(b) What important considerations are kept in mind while comparing different memory management strategies ?

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Explain the functioning of multi-level queue scheduling. Describe the objectives of long-term scheduler.

Following is the information related to some processes

Process	Burst	Priority	Arrival Time
P1	20	1	0
P2	14	5	6
P3	10	3	8
P4	8	1	10
P5	6	6	13

Using the above information, compute the average waiting time and average turn around time for each process for the following algorithms :

- Shortest Job First
- Pre-emptive Shortest Job First
- Priority Scheduling
- Pre-emptive Priority Scheduling
- Round Robin with time quantum of 3 units.

6. Define deadlocks with the help of suitable examples

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Explain its various prevention and detection and recovery techniques.

- 7
- (a) What are three types of file organisations? Explain in detail
  - (b) What are the disadvantage of linked list being used for disk space management?
- 8
- (a) What are the various advantages of client-server models?
  - (b) Explain the salient features of UNIX operating system.
  - (c) Explain critical section problem. What roles does semaphores play in it?

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