

Roll No. ....

Subject Code—6790

**M.C.A. (First Year) EXAMINATION**

(5 Years Integrated Course)

(Main)

MCA-105

**OPERATING SYSTEM-I**

*Time : 3 Hours*

*Maximum Marks : 70*

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

1. An Operating System acts as resource manager. Justify this w.r.t. the functionality of an operating system.

2. Distinguish among time-sharing, a parallel system, real time system and multitasking.

3. What is an operating system structure ?

4. Compare important operating system structures.

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4. (a) Describe the differences among short-term, medium-term and long-term scheduling.
- (b) Explain the process state and process control block.
5. What is the significance of scheduling algorithms in operating system ? What are the advantages of priority scheduling over round-robin scheduling ? Explain with suitable example.
6. How is a deadlock characterized ? Explain the term detection, recovery and prevention in context of deadlock. Explain one method for deadlock avoidance.
7. What happens when a page fault occurs ? Compare the following page replacement algorithms with respect to optimality :
  - (a) first-in, first-out page replacement
  - (b) least recently used page replacement
  - (c) optimal page replacement.

8. Write short notes on the following :

- (a) Paging and segmentation
- (b) Thrashing
- (c) Scheduling queue
- (d) Swapping.