

JUNE, 2006
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Subject Code—4268

M.C.A. (First Year) EXAMINATION

(5 Years Integrated Course)

MCA-105

OPERATING SYSTEM—I

Time : 3 Hours

Maximum Marks : 100

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

1. (a) Define an Operating System. Explain the functions of an operating system. 12
(b) Explain the evolution process of operating systems. 8
2. Discuss the properties of the following operating systems : $5 \times 4 = 20$
 - (a) Time Sharing System
 - (b) Parallel System
 - (c) Distributed System
 - (d) Real Time System.

P.T.O.

3. What is a Virtual Machine ? What is a virtual machine operating system ? Also list the several advantages and disadvantages of the virtual machine concept. 20
4. (a) Explain the layered structure of an operating system. Discuss the various services provided by an operating system. 12
- (b) Define and discuss the purpose of system calls. 8
5. (a) Define Process. What is process scheduling ? Discuss the three schedulers—long-term, medium-term and short-term schedulers. 14
- (b) What are the various operations performed on processes ? Give the list. 6
6. (a) What is CPU Scheduling ? Explain the basic criteria for selecting good scheduling algorithm. 10
- (b) What are the pre-emptive and non-pre-emptive scheduling algorithms. Discuss the various scheduling algorithms of both the categories. 10

7. What is a Deadlock ? Discuss the necessary conditions for deadlock. Explain the deadlock detection and recovery techniques. 20
8. What is Memory Management ? Explain the demand paging memory management technique. 20