

Roll No. ....

Total Pages : 2

BT-4/M-22

**44220**

OPERATING SYSTEMS  
Paper-PC-CS-AIDS-212A

Time : Three Hours]

[Maximum Marks : 75

**Note :** Attempt *five* questions in all, selecting at least *one* question from each unit. All questions carry equal marks.

**UNIT-I**

1. (a) How do you define an operating system? List out the functions of an operating system.  
(b) What is the difference between Time-sharing, Real Time and Distributed operating systems?
2. (a) What are the various operating system structures that can be used to implement it? Describe the architecture of layered structure.  
(b) What do system calls deal with? Give a categorization of system calls.

**UNIT-II**

3. What are the various criteria for comparing CPU scheduling? How will you describe preemptive and non-preemptive scheduling? Explain in brief the scheduling policies under both these categories.

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4. Answer the following questions in brief :
- (a) Describe the series of states in which a process can go.
  - (b) What is inter-process communication?
  - (c) How synchronization is performed using Semaphores?

### UNIT-III

5. How do you characterize a deadlock? What are the conditions that must hold for a deadlock? How will you distinguish between deadlock prevention and avoidance?
6. (a) What is virtual memory? Explain the difference between logical and physical addresses. Describe how segmentation is related to virtual memory concept.
- (b) How does paging contribute in the management of memory? Explain demand paging with the help of a suitable example.

### UNIT-IV

7. Compare the following :
- (a) Sequential, direct and indexed method for accessing files.
  - (b) FCFS and SSTF for disk scheduling.
8. Give an overview of the type of security threats and their possible consequences. What is the difference between program threats and system threats?