

Roll No. ....

Total Pages : 03

BT-4/M-24

44153

## OPERATING SYSTEMS

PC-CS-206-A

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. (i) Write a short note on various types of operating systems and also give one example of each type :

10

- (a) Multiprogramming OS
- (b) Multitasking OS
- (c) Real Time OS.

- (ii) Define Operating System. List different services provided by Operating System.

5

2. (i) Explain various protections in operating system.

7.5

- (ii) Explain simple and layered structure of operating system in detail. 7.5

## Unit II

3. What do you mean by CPU scheduling ? Differentiate preemptive and non-preemptive scheduling with suitable examples. 15
4. (i) Define a process. Explain various states of a process with suitable diagram. 10
- (ii) What is critical section problem ? 5

## Unit III

5. Define Deadlock. Explain algorithm for deadlock avoidance. Consider a computer has six tape drives, with  $n$  processes competing for them. Each process may need two drives. What is the maximum value of  $n$  for the system to be deadlock free. Also list the conditions that lead to deadlock. 15
6. Define Paging. Explain FIFO page replacement policy. Consider page reference string 1,3,0,3,5,6,3 with 3 page frames. Find the number of page faults. 15

## Unit IV

7. Define Disk Scheduling. Explain C-SCAN algorithm for disk scheduling with suitable example. 15
8. Explain the following terms in detail : 15
- (i) Polling
  - (ii) DMA
  - (iii) Interrupts.

