

# 22516

**12425**

**03 Hours / 70 Marks**

Seat No. 

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- Instructions –*
- (1) All Questions are *Compulsory*.
  - (2) Illustrate your answers with neat sketches wherever necessary.
  - (3) Figures to the right indicate full marks.
  - (4) Assume suitable data, if necessary.
  - (5) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

**Marks**

- 1. Attempt any FIVE of the following: 10**
- a) State any two command line based operating systems and two GUI based operating system.
  - b) Define system call and enlist its types.
  - c) Define PCB with suitable diagram.
  - d) Describe CPU and I/O burst cycle with suitable diagram.
  - e) State any four criteria in CPU scheduling.
  - f) Define the term paging.
  - g) Draw the structure of unix operating system.

P.T.O.

- 2. Attempt any THREE of the following:** **12**
- a) Differentiate between multitasking and multiprogramming.
  - b) List activities performed in process management and file management.
  - c) Define the term inter process communication. Explain any one technique of IPC.
  - d) Describe necessary conditions leading to deadlock.
- 3. Attempt any THREE of the following:** **12**
- a) Difference between user level and kernel level thread.  
(Any four points)
  - b) Describe First Come First Served (FCFS) scheduling algorithm with example.
  - c) Describe the concept of segmentation in Operating System with suitable example.
  - d) Describe Single level and two level directory structure.
- 4. Attempt any THREE of the following:** **12**
- a) Describe multiprocessor system with advantage and disadvantage.
  - b) List and describe any four services of operating system.
  - c) Describe the concept of scheduling queues with diagram.
  - d) Write steps of Banker's algorithm to avoid deadlock.
  - e) Explain swapping in operating system with diagram and example.

**5. Attempt any TWO of the following:****12**

- a) Describe use of following commands with syntax:
- i) ps
  - ii) wait
  - iii) sleep
  - iv) kill
- b) Write two uses of following operating system tools:
- i) User management
  - ii) Security Policy
  - iii) Performance Monitor
- c) Given a page reference string with (03) pages frames. Calculate the page faults with “Optimal” and “LRU” page replacement algorithm respectively.
- 7, 0, 1, 2, 0, 3, 0, 4, 2, 3, 0, 3, 2, 1, 2, 0, 1, 7.

**6. Attempt any TWO of the following:****12**

- a) Calculate average waiting time for SJF (Shortest Job First) and Round Robin (RR) algorithm table: (Time slice 4 ms)

Process	Burst Time
p1	10
p2	4
p3	9
p4	6

- b) Explain linked and indexed file allocation method with neat diagram.
- c) Describe variable partitioning technique of memory management with suitable example.
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