22516

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 <u>FIVE</u> 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.

Marks

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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