22516

11920

3 Hours / 70 Marks   Seat No.

Instructions – (1) All Questions are *Compulsory.*

(2) Answer each next main Question on a new page.

(3) Illustrate your answers with neat sketches wherever necessary.

(4) Figures to the right indicate full marks.

(5) Assume suitable data, if necessary.

(6) 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) Define real time operating system. List any four applications of it.

b) Explain any four services provided by OS.

c) Draw process state diagram.

d) Explain any four scheduling criteria.

e) Define virtual memory.

f) Write syntax of following commands:

(i) Sleep

(ii) Kill

g) Describe any four file attributes.

Marks

2. **Attempt any THREE of the following:** 12

   a) Enlist types of operating system. Explain multiprogramming OS in detail.

   b) List components of OS. Explain process management in detail.

   c) With neat diagram explain inter process communication model.

   d) Describe I/o burst and CPU burst cycle with neat diagram.

3. **Attempt any THREE of the following:** 12

   a) Explain 'PS' command with any four options.

   b) Explain deadlock? What are necessary conditions for deadlock?

   c) Explain partitioning and its types.

   d) Describe sequential and direct access method.

4. **Attempt any THREE of the following:** 12

   a) Write unix command for following:

   (i) Create a folder OSY

   (ii) Create a file FIRST in OSY folder

   (iii) List / display all files and directories.

   (iv) Write command to clear the screen

   b) What is purpose of system call? State any two system calls with their functions.

   c) State and describe types of scheduler.

   d) Explain Round Robin algorithm with suitable example.

   e) Explain PCB with diagram.

Marks

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

a) Enlist the operating system tools. Explain any two in detail.

b) Explain multithreading model in detail.

c) Explain LRU page replacement algorithm for following reference string.

   7 0 1 2 0 3 0 4 2 3 0 3 2 1 2 0 1 7 0 1

   Calculate the page fault.

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

a) The jobs are scheduled for execution as follows

Process	Arrival Time	Burst Time
P1	0	7
P2	1	4
P3	2	10
P4	3	6
P5	4	8

Solve the problem using:

(i)   SJF

(ii)   FCFS

Also find average waiting time using Gantt chart.

b) List free space management techniques? Describe any one in detail.

c) Enlist different file allocation methods? Explain contiguous allocation method in detail.

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