22516

22223

3 Hours / 70 Marks   Seat No.

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.

(6) Preferably, write the answer in sequential order.

Marks

1.   **Attempt any FIVE of the following:**   **10**

a) State any two features of Linux.

b) Difference between Time sharing system and Real time system (any 2 points)

c) State any four services of operating system.

d) Write the difference between pre-emptive and non-preemptive scheduling.

e) Define following terms :

   i)   Virtual Memory

   ii)   Paging

f) List any four file attributes and it's meaning.

g) Define Deadlock.

Marks

2.   **Attempt any <u>THREE</u> of the following:**   **12**

a) Explain different types of system calls.

b) Draw and explain process control block in detail.

c) State and explain four scheduling criteria.

d) Define fragmentation. Explain Internal and External Fragmentation

3.   **Attempt any <u>THREE</u> of the following:**   **12**

a) Describe multiprocessor OS with it's advantages. (any two)

b) Explain different components of operating system.

c) Explain different types of schedulers.

d) Explain two level directory structure with suitable diagram.

4.   **Attempt any <u>THREE</u> of the following:**   **12**

a) Explain real time OS. Explain it's types.

b) Draw process state diagram and describe each state.

c) Describe any four condition for deadlock.

d) Differentiate between paging and segmentation (any 4 points)

e) Explain fixed and variable memory management.

5.   **Attempt any <u>TWO</u> of the following:**   **12**

a) Explain the working of interprocess communication considering

     i)   Shared memory

     ii)   Message passing

b) With neat diagram explain multilevel queue scheduling.

c) Write two uses of following operating system tools.

     i)   Security policy

     ii)   User Management

     iii)   Task scheduler

Marks

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

a) List file allocation method and explain any one in details.

b) For the page 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 faults applying.

    i) Optimal

    ii) LRU

    iii) FiFo page

    Replacement algorithms for a memory with three frames.

c) Consider the four processes P1, P2, P3 and P4 with length of CPO Burst time. Find out Avg waiting time and Avg turn around time for the following Algorithms.

    i) FCFS

    ii) RR (Slice-4ms)

    iii) SJF

Process	Arrival time	Burst time
P1	0	8
P2	1	4
P3	2	9
P4	3	5

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