

22516

23242

3 Hours / 70 Marks

Seat No.

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- 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) Use of Non-programmable Electronic Pocket Calculator is permissible.
 - (7) 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) List different types of operating system.
 - b) State any four services provided by an operating system.
 - c) Draw process state diagram.
 - d) State two features of non-preemptive scheduling.
 - e) Define following terms:
 - i) Memory compaction
 - ii) Fragmentation
 - f) Write syntax of PWD command and explain its use with the help of suitable example.
 - g) List any four file operations.

P.T.O.

- 2. Attempt any THREE of the following: 12**
- a) Explain Resource management of an operating system.
 - b) Explain different components of operating system.
 - c) Describe message passing system of interprocess communication (IPC).
 - d) What is CPU Scheduler? Explain the preemptive and nonpreemptive type of scheduling.
- 3. Attempt any THREE of the following: 12**
- a) Define Process. Draw a Process Control Block and explain the information in PCB.
 - b) Define deadlock. State the conditions necessary for deadlock.
 - c) Explain the following terms with respect to memory management:
 - i) Dynamic relocation
 - ii) Swapping
 - d) With suitable diagram, explain how contiguous file allocation is performed?
- 4. Attempt any THREE of the following: 12**
- a) Compare between Time sharing operating system and multiprogramming operative system.
 - b) Explain any four types of system call.
 - c) Describe how context switch is executed by operating system.
 - d) Compare Short Job First (SJF) and Shortest Remaining Time (SRTN) scheduling algorithm (any four points).
 - e) Describe variable partitioning with the help of suitable example.

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

- a) Explain the use of following OS tools:
- i) Device Manager
 - ii) Task Scheduler
- b) Explain user level thread and Kernel level thread with its advantages and disadvantages.
- c) Consider the string:
0, 1, 2, 3, 0, 1, 2, 3, 0, 1, 2, 3, 4, 5, 6, 7 with frame size 3 and 4, calculate page fault in both the cases using FIFO algorithm.

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

- a) What is the average turnaround time for the following process using :
- i) FCFS scheduling algorithm
 - ii) SJF non-preemptive scheduling algorithm
 - iii) Round Robin Scheduling algorithm.

Process	Arrival time	Burst time
P ₁	0	8
P ₂	1	4
P ₃	2	1

- b) Explain bit map vector and linked list free space management techniques with its advantages and disadvantages.
- c) Explain with diagram single level directory structure and two level directory structure with its advantages and disadvantages.
