

17512

11819

3 Hours / 100 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) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1. Attempt any TEN of the following:

20

- a) State type of file access method?
- b) State any four criteria in CPU scheduling?
- c) Define UNIX operating system.
- d) What is system call?
- e) Define deadlock.
- f) List any four services provided by operating system.
- g) Define process.
- h) What is the concept of paging?
- i) Describe CPU and I/O burst cycle with suitable diagram.
- j) List different multithreading models.
- k) Draw the diagram of monolithic structure of operating system.
- l) List any two condition leading to process suspension.
- m) What is booting process?
- n) List different file allocation method.

P.T.O.

2. Attempt any FOUR of the following:**16**

- a) Differentiate between multitasking and multiprogramming.
- b) Draw process state diagram and describe each state.
- c) Explain any four file related system calls.
- d) Describe any four condition for deadlock.
- e) Explain the features of UNIX operating system.
- f) Describe working of sequential and direct access method.

3. Attempt any FOUR of the following:**16**

- a) Describe real time system and state any two example of its application.
- b) What is process management? State any four functions of process management.
- c) Draw and explain process control block in detail.
- d) Explain the pre-emptive and non-preemptive type of scheduling.
- e) Give the comparison between UNIX and LINUX operating system. (Any four points)
- f) Explain static and dynamic memory partitioning method.

4. Attempt any FOUR of the following:**16**

- a) Describe evolution of operating system.
- b) Explain memory management in detail.
- c) Consider the following four jobs.

| Job | Burst Time |
|-----|------------|
| J1 | 8 |
| J2 | 5 |
| J3 | 5 |
| J4 | 13 |

Find average waiting time for

- (i) FCFS
- (ii) SJF

- d) Draw and explain inter-process communication model.
- e) Describe virtual memory management.
- f) Explain multithreading model with diagram.

5. Attempt any FOUR of the following: 16

- a) Describe Round Robin algorithm with suitable example.
- b) Explain secondary storage management.
- c) How context switching is done?
- d) Explain Batch monitoring functions.
- e) Describe indexed allocation method with advantage and disadvantage.
- f) Explain single level directory structure.

6. Attempt any FOUR of the following: 16

- a) Differentiate between contiguous and linked memory allocation method.
 - b) Write steps for Banker's algorithm to avoid deadlock.
 - c) Explain with suitable example how semaphore help to overcome critical section problem.
 - d) Explain multilevel queue scheduling.
 - e) Why is process creation necessary? State the role of fork process in the context.
 - f) Describe microkernal structure of operating system.
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