

17512

11718

3 Hours / 100 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) Use of Non-programmable Electronic Pocket Calculator is permissible.
 - (6) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1. a) **Attempt any THREE of the following:** **12**
 - (i) Describe multiprogramming and multitasking.
 - (ii) Explain time sharing operating system and state its advantages and disadvantages.
 - (iii) What is system call? Enlist any four system calls related with process management.
 - (iv) List and explain any four attributes of file.
- b) **Attempt any ONE of the following:** **6**
 - (i) Explain following operating system structure in details:
 - 1) Monolithic
 - 2) Microkernel
 - (ii) Explain any six file operations performed by OS.

P.T.O.

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

- a) Explain distributed system in detail.
- b) Differentiate between short term and long term scheduler.
- c) State and explain criteria used for CPU scheduling.
- d) Explain FIFO (First in First out) page replacement algorithm for reference string 7012030423103.
- e) Explain structure of unix operating system with the help of diagram.
- f) Compare UNIX and LINUX operating system w.r.t.
 - (i) User interface
 - (ii) Name of provider
 - (iii) Processing speed
 - (iv) Security

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

- a) List any four services provided by OS and explain any two of them.
- b) State and explain different process state.
- c) Describe the terms:
 - (i) Preemptive scheduling
 - (ii) Non preemptive scheduling.
- d) Explain Round Robin algorithm with suitable example.
- e) Compare paging and segmentation memory management techniques.

4. a) Attempt any THREE of the following: 12
- (i) Explain booting procedure in details with the help of diagram.
 - (ii) Explain layered approach operating system.
 - (iii) Explain context switch with help of diagram.
 - (iv) Describe how process is terminated.
- b) Attempt any ONE of the following: 6
- (i) With neat diagram describe Process Control Block (PCB)
 - (ii) Explain following memory allocation methods:
 - 1) Contiguous
 - 2) Linked
5. Attempt any TWO of the following: 16
- a) List and explain various type of multi-threading models with diagram.
 - b) Enlist and describe in details conditions leading to Deadlocks.
 - c) The job are scheduled for execution as follows solve the problem using:
 - (i) SIS
 - (ii) FCFS
 also find average waiting time using Gantt chart.

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

17512

[4]

Marks

6. Attempt any FOUR of the following:

16

- a) Describe real time system. State any one example of its application.
 - b) Enlist system components. Describe any two in detail.
 - c) Describe the concept of virtual memory with suitable example.
 - d) Describe stepwise booting process of unix along with diagram.
 - e) Draw and explain Inter-process communication model.
-