22516

12223

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.

Marks

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

a) Differentiate between Multi programmed and Multi tasking operating system (Any two points).

b) List any four services provided by O.S.

c) Define : Process, PCB.

d) Define CPU and I/O burst cycle.

e) Differentiate between paging and segmentation.

f) Write syntax of following commands -

(i) Kill

(ii) Sleep

g) List any four file operations.

Marks

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

a) Explain Time sharing O.S.

b) Describe any two components of O.S.

c) Explain shared memory model of Interprocess communication (IPC).

d) Describe different scheduling criteria.

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

a) Draw and explain process state diagram.

b) Describe conditions for deadlock prevention.

c) Explain fixed size memory partitioning.

d) Explain linked file allocation method.

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

a) Compare between command line and Graphical user interface. (Any four points)

b) Write any four system call related to file management.

c) Compare between Long term and short term scheduler. (Any four points)

d) Solve given problem by using SJF and FCFS scheduling algorithm using Gantt chart. Calculate the average waiting time for each algorithm.

Process	Burst time (in ms)
P1	9
P2	7
P3	3
P4	7

e) Describe free space management technique. (Any two).

Marks

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

a) Write two uses of following O.S. tools –

(i) Device Management

(ii) Performance monitor

(iii) Task Scheduler

b) Writer the outputs of following commands

(i) Wait 2385018

(ii) Sleep 09

(iii) PS –u Asha

c) Given a page reference string with three (03) page frames. Calculate the page faults with 'Optimal' and 'LRU' page replacement algorithm respectively.

'7,0,1,2,0,3,0,4,2,3,0,3,2,1,2,0,1,7,0,1

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

a) Solve given problem by using

(i) Pre-emptive SJF

(ii) Round Robin (Time Slice = 3 ms)

Calculate average waiting time using Gantt Chart.

Process	A.T.	B.T. (in ms)
P_{11}	0	8
P_{12}	1	4
P_{13}	2	9
P_{14}	3	5

Marks

b) Consider the following memory map and assume a new process P4 comes with memory requirements of 6 KB. Locate (Draw) this process in memory using.

i) First fit

ii) Best Fit

iii) Worst fit

Memory
O.S.
P1
<FREE> 12 KB
P2
<FREE> 19 KB
P3
<FREE> 7KB

c) Construct and explain directory structure of a file system in terms of two level and tree structure.