

- N.B. :** (1) All questions are compulsory.
 (2) Figures to the right indicate marks.
 (3) Illustrations, in-depth answers and diagrams will be appreciated.
 (4) Mixing of subquestions is not allowed.

P-III
 March 2012
 7th April, 2012

1. Write short notes on following :— (Any 4)

- (a) OS services 5
- (b) Segmentation 5
- (c) Features of Linux 5
- (d) Firewalls 5
- (e) Shared memory and Message Passing 5
- (f) Iptables. 5

2. Answer the following questions (any four) :—

- (a) Consider the following set of processes with CPU burst time and arrival time. Illustrate the execution of processes. Also calculate average waiting time and turnaround time. 5

Jobs	Arrival Time	Priority	CPU Burst Time
P1	1	4	1
P2	1	1	3
P3	3	1	6
P4	3	2	5
P5	1	3	6

- (b) Write an algorithm using bounded buffer which will prove the synchronization between producer and consumer problem. 5
- (c) Define Thread. Explain in what all ways Threads are different than processes. 5
- (d) List different types of OS. Explain any 2 features of time sharing OS and Real Time OS. 5
- (e) Define critical section. State the requirements that must be meet to solve critical section problem. 5
- (f) Explain 5 state process model in brief. 5

3. Answer the following questions (any four) :—

- (a) Consider the following snapshot of a system. A,B,C,D are the resource types. Allocation, MAX and available matrix is as follows :— 5

Allocation					MAX				
	A	B	C	D		A	B	C	D
P0	0	0	1	2	P0	0	0	1	2
P1	1	3	5	4	P1	2	3	5	6
P2	0	6	3	2	P2	0	6	5	2

Available matrix : [1 4 2 0]
 Total Resources are : [4 14 12 12]

- Find the content of need array.
- Find the safe sequence.
- (b) Explain fixed sized partitioned method and variable sized partitioned method with respect to memory management. 5
- (c) Discuss different techniques used for free space management. 5
- (d) Define the following terms : 5
 (1) virus (2) trap door (3) encryption (4) worm (5) authenticity.
- (e) Consider the requested track was 55, 58, and 39,18, 90,160,150, 38,184. Current head position is at location 100. Find the average seek time of Disk using SSTF and SCAN algorithm. 5
 Comment which algorithm is better.
- (f) Diagrammatically step wise explain the concept of page fault handling. 5

[TURN OVER

