4. (a) Consider the following snapshot of a system --

	Allocation	Max	Available
	A B C D	A B C D	A B C D
P_0	0 0 1 2	0 0 1 2	1 5 2 0
P_1	1 0 0 0	1 7 5 0	
P_2	1 3 5 4	2 3 5 6	
P_3	0 6 3 2	0 6 5 2	
P_4	0 0 1 4	0 6 5 6	

with reference to banker's algorithm

    (i) Find need matrix   2

    (ii) Is the system in a safe state ?   4

    (iii) If a request from process P_1 arrives for (0, 4, 2, 0), can the request be granted   4
immediately.

(b) Discuss various techniques for structuring the page tables along with example.   10

5. (a) Explain in details, file management in Linux.   10

(b) Suppose that a disk drive has 5000 cylinders, numbered 0 to 4999. The drive is currently   10
servicing a request at cylinder 143 and the previous request was at cylinder 125. The
queue of pending requests, in FIFO order is 86, 1470, 913, 1774, 948, 1509, 1022,
1750, 130.

Starting from the current head position, what is total distance (in Cylinders) that the
disk arm moves to satisfy all the pending requests for each of the following disk
scheduling algorithms

    (i) SCAN   (ii) C-Look

6. Write note on the following :--   20

    (a) System components in Windows Operating System.

    (b) Demand paging and various page replacement policies.