1059

B.E. (Information Technology)
Fourth Semester
ITE-474/403: Operating System

Max. Marks: 50

Time allowed: 3 Hours

NOTE: *Attempt five questions in all, including Question No. I which is compulsory and selecting two questions from each Section.*

x-x-x

I.	Define the following: a) Medium Term Scheduler b) Race Condition c) Busy Waiting d) Unix file Structure e) System Call	10

Section-A

II.	Consider the set of 4 processes whose arrival time and burst time are given below-	10

Process No.	Arrival Time	Priority	Burst Time		
			CPU Burst	I/O Burst	CPU Burst
P1	0	2	1	5	3
P2	2	3	3	3	1
P3	3	1	2	3	1
P4	5	2	2	1	2

Assume that all I/O operations can be overlapped as much as possible. If the CPU scheduling policy is Priority Scheduling, calculate the average waiting time and average turn around time. (Lower number means higher priority)

III	a) Differentiate between external and internal fragmentation with suitable example. b) Consider the following sequence of logical addresses from a 600 byte programme: 20, 45, 107, 234, 450, 123, 309, 245, 560, 558, 364. Assuming a page size of 50 bytes. Give the reference string and how many page faults would occur using LRU and Optimal replacement algorithms if 150 bytes of physical memory is available?	4,6
IV	What is thrashing? When does is occur? What are the different measures to handle thrashing?	10

Section-B

V	Suppose that a disk drive has 2000 cylinders, numbered 0 to 1999. The current head position is at cylinder 143. The queue of pending requests is:
	    1186, 1750, 913, 774, 548, 150, 122, 1950, 1310
	What is the total distance that the disk arm moves to satisfy all the pending requests for each of the following disk scheduling algorithms:
	    i) SSTF
	    ii) SCAN
	    iii) LOOK
	    iv) C-SCAN
		10

VI	Discuss the Deadlock Detection in distributed Systems.	10

VII	Write short note on any two of the followings:
	    i) Process Migration
	    ii) Unix Memory Management
		10