BT-7/M-20   **37043**

OPERATING SYSTEM

EEcT-455-E

Time : Three Hours]   [Maximum Marks : 100

Note : Attempt *Five* questions in all, selecting atleast *one* question from each Unit. All questions carry equal marks.

Unit I

1. (a) Write a short note on Multiprocesor and Distributed Operating System.   **10**

  (b) Consider the following set of processes with the length of the CPU-burst time and Arrival time given in millisecond

Process	Arrival Time	Burst Time
P1	0	4
P2	1	3
P3	2	1
P4	3	2
P5	4	5

(2)L-37043   **1**

Apply First Come First Serve process scheduling algorithm and calculate the following :

(i) Turnaround Time for all processes and average turnaround time.

(ii) Waiting time for each processes and average waiting time. **10**

2. (a) Define Scheduler. Explain Long term, Medium term and Short term scheduler in detail. **10**

(b) Discuss Dual-Mode operation of an operating system in detail. **10**

Unit II

3. (a) Discuss Bare machine concept in detail.

(b) Explain various Page Replacement Algorithms with example. **10**

4. (a) Explain with an example the concept of shared pages in detail. **10**

(b) What is the need of Page replacement ? Consider the following reference string 7, 0, 1, 2, 0, 3, 0, 4, 2, 3, 0, 3, 2, 1, 2, 0, 1, 7, 0, 1. Find the number of Page Faults with FIFO, Optimal Page replacement and LRU with four free frames which are empty initially. Which algorithm gives the minimum number of page faults ? **10**

Unit III

5. (a) Differentiate SSTF and LOOK disk scheduling algorithms with example. **10**

     (b) Explain various domains of protections. Discuss various protection problems. **10**

6. (a) Differentiate SCAN and CSAN with example. **10**

     (b) Discuss dynamic protection structure in detail. **10**

Unit IV

7. (a) Discuss various concurrency control mechanisms. **10**

     (b) What is Deadlock ? Discuss various conditions that lead to deadlock with example. **10**

8. (a) Differentiate deadlock avoidance and prevention. How can deadlock be prevented ? **10**

     (b) Explain the concept of semaphores in detail.