Exam. Code: 0922
Sub. Code: 33529

2015
B.E. (Information Technology)
Fourth Semester
PCIT-403: Operating System

Time allowed: 3 Hours **Max. Marks: 50**

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

x-x-x

1. Define the followings: (10)
   a) Long term scheduler
   b) System call
   c) Stateful Server
   d) Index file allocation
   e) Free Space Management
   f) Demand Paging
   g) Race Condition
   h) TLB
   i) Segmentation
   j) Seek Time

PART - A

2. a) What is critical section problem? How are semaphores help in handling this problem? Explain with the help of example. (6)
   b) Define process control block with diagram. (4)
3. (a) Why page size is always a power of 2? Can we run a process whose size is bigger than main memory size? How? (4)
   (b) What is thrashing? Discuss its impact on CPU utilization. How can we reduce thrashing? (6)
4. Consider a system with 400 bytes of physical memory and page size of 100 bytes.
   (i) Give the reference string for the following sequence of logical addresses from a 900 byte programme:
   120, 405, 10, 234, 750, 223, 409, 345, 760, 858, 664.
   (ii) Calculate the number of page faults that would occur using LRU and Optimal replacement algorithms. (2+4+4)

PART – B

5. Suppose that a disk drive has 5000 cylinders, numbered 0 to 4999. The current head position is at cylinder 143. The queue of pending requests is: 86, 1470, 913, 1774, 948, 1509, 1022, 1750, 130 What is the total distance that the disk arm moves to satisfy all the pending requests for each of the following disk scheduling algorithms: (10)
   i) SSTF
   ii) LOOK

P.T.O.

6. (a) Discuss in detail the deadlock detection and recovery techniques for distributed environment with example.

   (b) Explain the different types of cache updating policies. (7+3)

7. Write short note on any two of the followings: (10)

   a) Process Migration

   b) Bully Election Algorithm

   c) Unix file system

x-x-x