Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

MCA - SEMESTER–III • EXAMINATION – SUMMER • 2014

Subject Code: 630004 **Date: 03-06-2014**

Subject Name: Operating System

Time: 02:30 pm - 05:00 pm **Total Marks: 70**

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1 **(a)** What is the difference between strong and weak semaphores? **[02]**

(b) What is Preemptive and Nonpreemptive Scheduling Policies? **[02]**

(c) What are ULTs and KLTs? **[02]**

(d) What is internal and external fragmentation? **[02]**

(e) Give Full form for following word **[02]**

1)SSTP 2) DMA 3) PSW 4) SMP

(f) Explain Buddy System with respect to memory management. **[04]**

Q.2 **(a)** List Reason for process Creation, Suspension and termination. **[07]**

(b) What conditions are generally associated with the readers/writers problem? **[04]**

(c) Explain Access Control Structures in file System security. **[03]**

OR

(b) What is concurrency? Explain different Unix Concurrency Mechanism. **[04]**

(c) Explain Remote Procedure Call Mechanism with diagram. **[03]**

Q.3 **(a)** What is process? Explain Process State Transition Diagram with Suspend States. **[07]**

(b) What is Monitors? Elucidate structure of Monitor. **[07]**

OR

Q.3 **(a)** What is the need of PCB? Explain typical elements of a Process Control Block. **[07]**

(b) What is the use of Banker's Algorithm? Elaborate of Banker's Algorithm with example. **[07]**

Q.4 **(a)** What do you mean by Memory Management? Explain any one technique for Memory Management. **[07]**

(b) What do you mean by RAID? Explain Different RAID levels. **[07]**

OR

Q.4 **(a)** What is Paging? Explain Address Translation in a Paging System. **[07]**

(b) What is the Need of Page Replacement? Explain LRU and OPT Page Replacement Algorithms. **[07]**

Q.5 **(a)** Explain Round Robin Process Scheduling Algorithm with example. **[07]**

(b) What is Disk Scheduling? Elaborate C-SCAN Disk Scheduling Algorithms. **[07]**

OR

Q.5 **(a)** What is the use of Cluster? Explain different Clustering Methods. **[07]**

(b) What is the need of File Allocation Methods? Explain Chained File Allocation Methods. **[07]**

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