

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY
MCA - SEMESTER-III • EXAMINATION – SUMMER 2013

Subject Code: 630004

Date: 17-05-2013

Subject Name: Operating System

Time: 10.30 am - 01.00 pm

Total Marks: 70

Instructions:

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

- QI. Do as directed :** **14**
- 1.** Define the basic Instruction cycle.
 - 2.** What is the kernel of the OS?
 - 3.** What is an Instruction trace?
 - 4.** Define Jacketing.
 - 5.** A semaphore that does not specify the order in which processes are removed from the queue is a _____. (Fill in the Blank)
 - 6.** The _____ is a directed graph that depicts a state of the system of resources and processes, with each process and each resource represented by a node. (Fill in the Blank)
 - 7.** _____ is a technique for overcoming external fragmentation. (Fill in the Blank)
 - 8.** Define Response time.
 - 9.** What is gang scheduling?
 - 10.** A _____ module controls the exchange of data between the main memory and an I/O module. (Fill in the Blank)
 - 11.** RAID level 02 applies for redundancy using interleaved parity. (State True or False with valid reason)
 - 12.** What sort of data structure or table is used to keep track of the portion assigned to a file?
 - 13.** Multiprogramming allows the processors to make use of idle time caused by long – wait interrupt handling. (State True or False with valid reason).
 - 14.** Clustering is an alternative to symmetric multiprocessing as an approach to providing high performance and high availability. (State True or False with valid reason)
- QII. Draw a neat sketch and explain the Process State transition Diagram with Suspended States.** **07**
- (a)** **07**
- (b)** List and explain the advantages and disadvantages of ULTs over KLTs. **07**
- OR**
- (b)** What is Readers/Writers problem? Explain in detail **07**

- QIII.** Describe the necessary condition for deadlock occurrence. Explain the deadlock avoidance using Banker's Algorithm and the data structure for implementing this algorithm. **07**
- (a)**
- (b)** What is paging? Explain the following terms : **07**
- (i) page
 - (ii) frames
 - (iii) page table
- Also explain with examples how Logical –to Physical Address Translation takes place.
- OR**
- QIII.(a)** Explain thrashing. What is the purpose of Translation Lookaside Buffer? **07**
- (b)** List and Explain the different types of Processor Scheduling, **07**
- QIV (a)** What is Real time Scheduling? Explain the Characteristics of Real –Time Operating System. **07**
- (b)** Briefly explain the different RAID levels. Support your illustrations with neat sketches. **07**
- OR**
- QIV(a)** List the difference between the following : **07**
- (i) field and a record
 - (ii) File and a database.
- Also explain the file management system?
- (b)** Define Computer Security. What are the fundamental requirements addressed by computer security? **07**
- QV(a)** What does the term Cluster mean? What are the benefits of using a Cluster? Also compare different Clustering Methods. **07**
- (b)** Write short notes on : **07**
- (i) Distributed Message Passing
 - (ii) Intruders
- OR**
- QV(a)** Explain the Disk Scheduling Algorithms. Support your illustrations with neat sketches. **07**
- (b)** Write short notes on: **07**
- (i) buddy system
 - (ii) Mutexes
