Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

MCA - SEMESTER–III • EXAMINATION – SUMMER • 2015

Subject Code: 630004 **Date: 14-05-2015**

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) Fill in the blanks. **07**

1. The situation in which two or more programs hung up waiting for each other is called _____.
2. _____ Program switches the processor from one process to another.
3. _____ performs moving part or all of a process from main memory to disk.
4. Each process has associated with it a number of attributes that are used by the OS for process control. The collection of attributes is referred to as a _____.
5. _____ is the maximum amount of time that a process can execute before being interrupted.
6. The technique of converting a blocking system call into a non-blocking system call is called _____.
7. Most virtual memory schemes make use of a special high-speed cache for page table entries, usually called a _____.

(b) Answer the following. **07**

1. Write the difference between context switching and process switching.
2. List the Thread states.
3. Define the mutual exclusion.
4. List the two control problems created due to enforcement of mutual exclusion in concurrent process.
5. List the elements found in the page table entry
6. Define Turnaround time
7. Define disk cache.

Q.2 (a) What do you mean by dynamic partitioning? Explain first-fit, best-fit, next-fit placement policies and buddy system using proper example. **07**

(b) Explain the Process State Transition diagram with suspended states. **07**

OR

(b) List and explain the advantages and disadvantages of ULTs over KLTs. **07**

Q.3 (a) What is Deadlock? List necessary conditions required for occurrence of deadlock. Explain Banker's algorithm for deadlock avoidance. **07**

(b) What do you understand by paging? Explain – page, frame, page table. How Logical to Physical Address Translation takes place. **07**

OR

Q.3 (a) Describe thrashing. What is the importance of Translation Lookaside Buffer? **07**

(b) Describe inter process communication using message passing. Provide a solution to the producer/consumer problem using message passing. **07**

Q.4 (a) List and explain different kinds of Processor Scheduling. **07**

	(b)	Explain different RAID levels.	**07**

OR

Q.4	**(a)**	Differentiate between (i) Field and Record (ii) File and Database	**07**
	(b)	Write a short note on (i) Gang Scheduling (ii) Buddy System	**07**
Q.5	**(a)**	What do you mean by cluster? Explain the importance of clustering. List out the clustering methods.	**07**
	(b)	Explain the 3-tier client/server architecture. What is the importance of middleware in Client/Server architecture?	**07**

OR

Q.5	**(a)**	What is Disc Scheduling? Describe different disc scheduling policies.	**07**
	(b)	Write short note on (i) DMA (ii) Mutex	**07**

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