

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

MCA - SEMESTER-III • EXAMINATION – SUMMER • 2014

Subject Code: 2630004

Date: 03-06-2014

Subject Name: Operating Systems (OS)

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) Answer following in short. 07**
- (1) Discuss the possible reasons for process migration.
 - (2) Define F-SCAN policy.
 - (3) What is the relation between FIFO and clock page replacement algorithm?
 - (4) List multiprocessor thread scheduling approaches.
 - (5) What delay elements are involved in a disk read or write?
 - (6) Give the difference between consumable and reusable resources.
 - (7) List the function of cluster middleware.
- (b) Explain the utility of process control block. What kind of information is stored in it? Define two main categories of processor registers. 07**
- Q.2 (a) Draw the Unix process state diagram and explain how processes change the states. 07**
- (b) List common events lead to a creation of process and also list the steps performed by an OS to create a new process and 07**
- OR**
- (b) Why is a user mode and kernel mode considered good operating system? Give an example that illustrate a user process being switched from user mode to kernel mode, and then back to user mode. 07**
- Q.3 (a) Briefly discuss three types of processor scheduling. 07**
- (b) What is Message passing? Explain the solution to Bounded-Buffer Producer/Consumer problem using it. 07**
- OR**
- Q.3 (a) Define Readers/Writers problem. What are conditions generally associated with this problem? How can this problem be solved using semaphores? 07**
- (b) Discuss ULT and KLT. 07**
- Q.4 (a) What is virtual memory? Describe the combined paging and segmentation approach for memory management explaining how physical address is generated in this scheme. 07**
- (b) Explain I/O buffering and Record blocking. 07**
- OR**
- Q.4 (a) Explain Remote Procedure Call and discuss benefits and disadvantages of synchronous and asynchronous RPC. 07**
- (b) Discuss internal fragmentation and external fragmentation. 07**
- Q.5 (a) Define client server computing and explain the classes of client server applications and compare it with three tier architecture. 07**
- (b) List and Explain deadlock handling strategy. 07**
- OR**
- Q.5 (a) Explain Fair-Share Scheduling and Gang scheduling. 07**
- (b) Explain RAID and its level 0-6 in detail 07**
