

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY
MCA - SEMESTER-III • EXAMINATION – WINTER 2016

Subject Code: 630004

Date: 04/01/2017

Subject Name: Operating Systems (OS)

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.

- Q.1** (a) What is Process? List various reasons for Process creation and termination. **07**
(b) What is Paging? Explain in brief address translation in paging system. **07**
- Q.2** (a) What is semaphore? Give and explain the algorithm of producer/consumer problem with bounded using general semaphore. **07**
(b) What is deadlock? State necessary conditions for deadlock to occur. Explain banker's algorithm for deadlock avoidance. **07**
- OR**
- (b) What is the importance of scheduling? What is pre-emptive and non-preemptive scheduling? Explain in brief FCFS and RR scheduling algorithm. **07**
- Q.3** (a) What do you mean by Memory Management? Explain buddy system. **07**
(b) What is meant by thread scheduling? Briefly discuss the general approaches for thread scheduling. **07**
- OR**
- Q.3** (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 in brief various directory structures. List various operations that can be performed on directories. **07**
- Q.4** (a) Briefly define first three levels of RAID. **07**
(b) List and briefly explain three file allocation methods. **07**
- OR**
- Q.4** (a) What is the need of Disc Scheduling? Describe different Disc Scheduling policies in detail. **07**
(b) Explain thrashing. What is the purpose of Translation Lookaside Buffer? **07**
- Q.5** (a) Define computer security. What are the fundamental requirements addressed by computer security? What is the difference between passive and active security threats? **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 do you mean by cluster? Explain the importance of clustering. List out the clustering methods. **07**
(b) Explain Remote Procedure Call and discuss benefits and disadvantages of synchronous and asynchronous RPC. **07**
