

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

MCA - SEMESTER-III • EXAMINATION – WINTER • 2015

Subject Code: 630004

Date: 31-12-2015

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.

- Q.1** (a) Explain the memory management requirements. What is memory partitioning? **07**
(b) Explain the following terms : **07**
1) Thrashing 2) Frame
3) Critical Section 4) Dispatcher
5) Page Fault 6) Mutex 7) PSW
- Q.2** (a) List the I/O Communication techniques and explain any one in detail. **07**
(b) What is a resident set? Explain fixed-allocation and variable-allocation replacement policy and replacement scope with reference to virtual memory. **07**
OR
(b) Explain Readers Writers problem, its variations and one possible solution. **07**
- Q.3** (a) Explain the seven state process model with state transitions. **07**
(b) What is mutual exclusion? What are the requirements of mutual exclusion? **07**
What is a Semaphore? Explain the possible operations with Semaphores.
OR
- Q.3** (a) What do you mean by short-term scheduling? Explain any three Short-Term Scheduling Algorithms. **07**
(b) What is ULT and KLT? Discuss the advantages and disadvantages of both. **07**
- Q.4** (a) What is meant by File Allocation Method? Explain any three. **07**
(b) Explain seek time, operational latency and transfer time with reference to Disk. **07**
Explain any two Disk Scheduling policies.
OR
- Q.4** (a) 1) What is Middleware? **03**
2) Explain RPC in detail. **04**
(b) Define the term deadlock. Explain the necessary and sufficient conditions for deadlock. How can deadlock be prevented? **07**
- Q.5** (a) What are the characteristics of RAID? Explain RAID Level 0, RAID Level 1 & RAID Level 2. **07**
(b) What is meant by thread scheduling? Briefly discuss the general approaches for thread scheduling. **07**
OR
- Q.5** (a) What is Client Server Computing? Explain different classes of client server computing. **07**
(b) Why is File organization important? Explain any three methods of file organization. **07**
