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Subject Code: 630004

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

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. (a) What is Process? List various reasons for Process creation and termination. **Q.1** 07 **(b)** What is Paging? Explain in brief address translation in paging system. 07 What is semaphore? Give and explain the algorithm of producer/consumer **07 Q.2** problem with bounded using general semaphore. (b) What is deadlock? State necessary conditions for deadlock to occur. Explain **07** banker's algorithm for deadlock avoidance. OR (b) What is the importance of scheduling? What is pre-emptive and non-preemptive 07 scheduling? Explain in brief FCFS and RR scheduling algorithm. 0.3 (a) What do you mean by Memory Management? Explain buddy system. 07 What is meant by thread scheduling? Briefly discuss the general approaches for **(b)** 07 thread scheduling. OR What do you mean by dynamic partitioning? Explain first-fit, best-fit, next-fit **Q.3** 07 placement policies and buddy system using proper example. (b) Explain in brief various directory structures. List various operations that can be 07 performed on directories. Briefly define first three levels of RAID. 0.4 07 (a) **(b)** List and briefly explain three file allocation methods. 07 OR What is the need of Disc Scheduling? Describe different Disc Scheduling policies 0.4 (a) 07 **(b)** Explain thrashing. What is the purpose of Translation Lookaside Buffer? 07 **Q.5** Define computer security. What are the fundamental requirements addressed by **07** computer security? What is the difference between passive and active security threats? (b) Explain the 3-tier client/server architecture. What is the importance of 07 middleware in Client/Server architecture? What do you mean by cluster? Explain the importance of clustering. List out the Q.5 **07** (a) clustering methods. (b) Explain Remote Procedure Call and discuss benefits and disadvantages of 07 synchronous and asynchronous RPC.
