Seat No.: _		Enrolment No
	GUJARAT TECHNOLOGICAL UNIVERSITY	
SEMESTER- 3 EXAMINATION – WINTER 2012		
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Subject code: 630004 Date: 03/01/2013 **Subject Name: Operating Systems (OS)** Time: 10:30 - 13:00 **Total Marks: 70 Instructions:** 1. Attempt all questions. 2. Make suitable assumptions wherever necessary. 3. Figures to the right indicate full marks. (a) i) Define: a) Race Condition b) Thrashing c) Throughput 0.1 03 ii) What is Operating system? Explain in brief various 04 functions of Operating System. (b) What is Process? List various reasons for Process creation 07 and termination. 0.2 (a) What is the importance of scheduling? What is pre-emptive 07 and non-preemptive scheduling? Explain in brief FCFS and RR scheduling algorithm. (b) What is Deadlock? Explain in brief deadlock avoidance, 07 prevention and detection. OR (b) What is thread and multithreading? Describe in brief KLT 07 and ULT with its advantages and disadvantages. Q.3 (a) Write short note: i) Memory management 04 ii) Clock Replacement policy 03 **(b)** What is Virtual Memory? Briefly explain Translation **07** Lookaside buffer(TLB). OR Q.3 (a) Briefly explain Fixed and dynamic partitioning with 07 advantaged and disadvantages. Give names of placement algorithm used for fixed and dynamic partitioning. (b) What is Paging? Explain in brief address translation in 07 paging system. 0.4 (a) List various File Organizations. Explain in brief any three. **07 (b)** Write short note: i) Gang Scheduling 03 ii) DMA 04 OR (a) Explain in brief various directory structures. List various **Q.4** 07 operations that can be performed on directories. **(b)** Write short note: i) SCAN and FIFO Disk Scheduling algorithm 04 ii) Explain in brief file sharing of UNIX. 03 (a) What is Cluster? Explain in brief benefits of clustering. 07 Q.5

(b) i) Differentiate between Blocking and non-blocking 03 message passing.

List various clustering methods.

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ii) Define Mutual Exclusion. List requirements for Mutual **04** exclusion. **OR**

Q.5 (a) Explain in brief 3-tier Client / Server architecture. Discuss 07 the role of middleware in Client / Server architecture.

(b) Write short note:

i) Distributed message passing 04

ii) Differentiate between Strong and Weak semaphore. 03
