

GUJARAT TECHNOLOGICAL UNIVERSITY**SEMESTER– 3 EXAMINATION – WINTER 2012****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.

- Q.1** (a) i) Define: a) Race Condition b) Thrashing c) Throughput **03**
ii) What is Operating system? Explain in brief various functions of Operating System. **04**
(b) What is Process? List various reasons for Process creation and termination. **07**

- Q.2** (a) What is the importance of scheduling? What is pre-emptive and non-preemptive scheduling? Explain in brief FCFS and RR scheduling algorithm. **07**
(b) What is Deadlock? Explain in brief deadlock avoidance, prevention and detection. **07**

OR

- (b) What is thread and multithreading? Describe in brief KLT and ULT with its advantages and disadvantages. **07**

- Q.3** (a) Write short note:
i) Memory management **04**
ii) Clock Replacement policy **03**
(b) What is Virtual Memory? Briefly explain Translation Lookaside buffer (TLB). **07**

OR

- Q.3** (a) Briefly explain Fixed and dynamic partitioning with advantages and disadvantages. Give names of placement algorithm used for fixed and dynamic partitioning. **07**
(b) What is Paging? Explain in brief address translation in paging system. **07**

- Q.4** (a) List various File Organizations. Explain in brief any three. **07**
(b) Write short note:
i) Gang Scheduling **03**
ii) DMA **04**

OR

- Q.4** (a) Explain in brief various directory structures. List various operations that can be performed on directories. **07**
(b) Write short note:
i) SCAN and FIFO Disk Scheduling algorithm **04**
ii) Explain in brief file sharing of UNIX. **03**

- Q.5** (a) What is Cluster? Explain in brief benefits of clustering. List various clustering methods. **07**
(b) i) Differentiate between Blocking and non-blocking message passing. **03**

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

OR

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

(b) Write short note:

i) Distributed message passing **04**

ii) Differentiate between Strong and Weak semaphore. **03**
