Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

M. E. - SEMESTER – I • EXAMINATION – WINTER 2012

Subject code: 715102 Date: 09-01-2013

Subject Name: Advanced Operating System & Management

Time: 02.30 pm – 05.00 pm Total Marks: 70

Instructions:

1. **Attempt question 1, which is compulsory and answer any five from the rest .**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right hand indicate the marks.**

Q. No. 1 Explain the following terms [2 Marks X 10 = 20 Marks]

a) Scalability
b) Deadlock
c) Recovery
d) Configuration
e) Load Balancing
f) Boot Loader
g) Distributed Operating System
h) Shared Memory
i) Synchronization
j) Concurrency

Q. No. 2 [6+4 Marks]

a) Draw the Architecture of a Distributed System? Discuss issues related with Distributed Operating System.
b) Discuss issues in Deadlock Detection and Avoidance.

Q. No. 3 [6+4 Marks]

a) What are the requirements of Mutual Exclusion Algorithm? Discuss Lamports Distributed Mutual Exclusion Algorithm.
b) Write SUZUKI-KASAMI'S Broadcast Algorithm for Mutual Exclusion.

Q. No. 4 [4+3+3 Marks]

a) Explain various strategies of handling deadlocks in distributed systems.
b) Define Backward and Forward Error Recovery.
c) Explain Atomic Commit in context of distributed system.

Q. No. 5 [3+4+3 Marks]

a) Write briefly on OS Trouble Shooting approach.
b) Explain components of a Load Distributing Algorithm of Distributed Scheduling.
c) Compare Load Balancing and Load Sharing Algorithms.

Q. No. 6 [6+4 Marks]

a) What is the typical function of an Operating System? What is multi-programming operating system? How multi-programming increases CPU utilization?
b) Explain different type of Failures

Q. No. 7 [3+4+3 Marks]

a) Write notes on performance tuning of Linux operating system.
b) Draw the architecture of distributed shared memory.
c) Discuss distributed systems Potential Security Violations.

Q. No. 8 [6+4 Marks]

a) Explain the following with suitable examples:
    i. Vector Clocks
    ii. Global State
d) Write notes on Network Address Translation(NAT).

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