Seat No.: _____ Enrolment No._____

# GUJARAT TECHNOLOGICAL UNIVERSITY

**M. E. - SEMESTER – II • EXAMINATION – WINTER • 2013**

**Subject code: 1720201** **Date: 24-12-2013**

**Subject Name: Distributed Operating Systems**

**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.**

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|---|---|---|---|
| **Q.1** | **(a)** | What are the major issues in designing a Distributed Operating System? | **07** |
| | **(b)** | Discuss the advantages and disadvantages of a workstation system model. | **07** |
| **Q.2** | **(a)** | Explain the classification of various Distributed mutual Exclusion algorithm. | **07** |
| | **(b)** | Explain desirable features of process migration in distributed operating system. | **07** |
| | | **OR** | |
| | **(b)** | Discuss any two election algorithms of your choice to deal with coordinator failure. | **07** |
| **Q.3** | **(a)** | Describe blocking and nonblocking types of IPC. Which is easier to implement and why? Discuss their relative advantages and disadvantages. | **07** |
| | **(b)** | Explain distributed algorithm for deadlock detection and prevention. | **07** |
| | | **OR** | |
| **Q.3** | **(a)** | What is “stub”? How stubs are generated? Explain how the use of stubs helps in making an RPC mechanism transparent. | **07** |
| | **(b)** | Discuss the relative advantages and disadvantages of using the NRNMB,NRMB,RMB, and RNMB strategies in the design of a DSM system. | **07** |
| **Q.4** | **(a)** | What is causal consistency? Give an example of an application for which causal consistency is the most suitable consistency model. | **07** |
| | **(b)** | How do clock synchronization issues differ in centralized and distributed computing systems? | **07** |
| | | **OR** | |
| **Q.4** | **(a)** | Discuss the issues that have to be considered in allocating process to processor in a Distributed System. | **07** |
| | **(b)** | Why do most RPC Systems support call-by-value semantics for parameter passing? Justify your answer. | **07** |
| **Q.5** | **(a)** | Explain task assignment and load balancing in Distributed environment. | **07** |
| | **(b)** | What are the three main approaches for designing a DSM system? | **07** |
| | | **OR** | |
| **Q.5** | **(a)** | What is an immutable file? Discuss advantages of stateful file servers. | **07** |
| | **(b)** | Describe the process scheduling of Mach Operating System in multiprocessor system. | **07** |

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