

GUJARAT TECHNOLOGICAL UNIVERSITY
ME SEMESTER II EXAMINATION – SUMMER 2017

Subject Code: 2720207**Date: 26/05 /2017****Subject Name: Distributed Computing and Applications****Time: 02:30 PM to 05:00 PM****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) Explain the concept of logical clocks and their significance in distributed systems. Also discuss the implementation of logical clocks by using counters. **07**
- (b)
 1. What are the disadvantages of RPC over local procedure call? **03**
 2. Which are the different forms to express degree of reliability in distributed system? **04**
- Q.2** (a) Discuss necessary and sufficient conditions for deadlock in detail. **07**
- (b)
 1. Discuss absolute ordering semantic used for ordered delivery of multicast messages. **03**
 2. Discuss complicated RPCs in brief. **04**
- OR**
- (b)
 1. Explain security mechanisms. **03**
 2. Mention the characteristics of typical multimedia streams. **04**
- Q.3** (a) Discuss factors that influence the block size of distributed shared memory. **07**
- (b)
 1. What are the advantages of RMI over RPC? **03**
 2. Explain synchronous and asynchronous communication with respect to distributed systems. **04**
- OR**
- Q.3** (a) Discuss workstation-server model that can be used to build distributed system. What are the advantages of workstation-server model over workstation model? **07**
- (b)
 1. Discuss different categories of block replacement algorithms. **03**
 2. Discuss Causal Consistency Model that can be used to maintain consistency for distributed shared memory. **04**
- Q.4** (a) Explain stub and skeleton of RMI using simple diagram. Which are the steps involved in creation of RMI program? **07**
- (b)
 1. Explain Flat and nested distributed transactions detail. **03**
 2. How concurrency control is achieved by using Optimistic concurrency control? **04**
- OR**
- Q.4** (a) What are the steps involved in creating socket on client side? What are the steps involved in creating socket on server side? Extend discussion with a suitable example of stream socket. **07**
- (b)
 1. Explain how clients can obtain service descriptions. **03**
 2. Explain SOAP in detail. **04**
- Q.5** (a) Which are the issues involved in designing load balancing approach? What are the differences between centralized and decentralized load balancing algorithms? **07**
- (b) How is commit protocol useful to achieve atomicity? Discuss in detail. **07**

OR

- Q.5** (a) Discuss different models of thread organization. **07**
(b) Explain use of XML in web service. Explain different types of XML parser. **07**
