

GUJARAT TECHNOLOGICAL UNIVERSITY
MCA - SEMESTER- IV • EXAMINATION – WINTER 2015

Subject Code : 640006**Date:09/12/2015****Subject Name : Distributed Computing (DC1)****Time:10.30 a.m.To 01.00 p.m.****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) State True/False. 07

- i. A monolithic computing makes use of a single central processing unit (CPU) to execute one or more programs for each application.
- ii. Asynchronous operation can be issued by a process when that process may proceed without waiting for the completion of the event that the operation initiates.
- iii. In basic socket APIs whether connection-oriented or connectionless, the send operations are blocking while receive operations are nonblocking.
- iv. A concurrent server is capable of conducting multiple client sessions in parallel.
- v. The distributed objects paradigm is data oriented.
- vi. CORBA is not in itself a distributed object facility; instead, it is a set of protocols.
- vii. SOAP messages are encoded in HTML for interoperability.

(b) Define Following terms. 07

- i. Data marshalling
- ii. Collaborative Application Paradigm
- iii. Secure Socket Layer(SSL)
- iv. Latency
- v. Session state data
- vi. Object Adapters
- vii. XML Schema Data types

Q.2 (a) Explain Program flow of sender & receiver process using connectionless datagram socket. List methods of DatagramPacket class and DatagramSocket class. 07**(b) What do you mean by indefinite blocking? Discuss the event synchronization in different modes of IPC. 07****OR****(b) Discuss in detail, How message passing paradigm is different than the distributed object paradigm? 07****Q.3 (a) i. Discuss three-tier software architecture for client-server software. 04****ii. Write a short note on peer-to-peer paradigms. 03****(b) List the JAVA classes that support basic multicast. Also explain the major methods of those classes that can be used for the implementation of multicast. 07****OR**

- Q.3 (a)** Explain and Differentiate the following. **04**
- i. Iterative server and Concurrent Server **03**
 - ii. Stateful server and Stateless Server **07**
- (b)** Explain various classifications of multicasting mechanisms on the basis of their characteristics of message delivery. **07**
- Q.4 (a)** Write a short note on java RMI architecture and show stub & skeleton interactions using an appropriate diagram. **07**
- (b)** Explain how Hidden form fields can be used for transferring session state data. Explain security concerns with reference to cookies and hidden form fields. **07**
- OR**
- Q.4 (a)** What is the role of RMI registry on server-side and client-side? Explain the tradeoffs between RMI API and Socket API. **07**
- Q.4 (b)** Explain how cookies can be used for transferring session state data. What are the pros and cons of cookies? **07**
- Q.5 (a)** Discuss the basic CORBA architecture using an appropriate diagram. **07**
- (b)** What is SOAP? Explain the layout of SOAP request. Discuss the important classes from Apache SOAP. **07**
- OR**
- Q.5 (a)** Which tools are provided by Java IDL to develop a CORBA application? List and explain the use of the files that are normally created in a CORBA application developed using Java IDL. **07**
- (b)**
- i. Explain what is REST? Explain any three basic principals possessed by RESTful service. **04**
 - ii. Explain the following with respect to Java Annotations. **03**
 - a. @webservice
 - b. @webmethod
 - c. @webResult
