Seat No.: _____ Enrolment No._____

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 paradigms is data oriented.

vi. CORBA is not in itself a distribute 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. i. Iterative server and Concurrent Server ii. Stateful server and Stateless Server	 **04** **03**
	(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. ii. Explain the following with respect to Java Annotations. a. @webservice b. @webmethod c. @webResult	**04** **03**

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