GUJARAT TECHNOLOGICAL UNIVERSITY
MCA - SEMESTER–IV • EXAMINATION – WINTER 2016

Subject Code: 2640006   **Date: 26/10/2016**
Subject Name: Distributed Computing (DC1)
Time:10.30 AM TO 01.00   **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 event synchronization for following IPC modes. i) Synchronous send and Asynchronous receive ii) Asynchronous send and Synchronous receive	**07**
	(b)	Explain Atomic, FIFO and Causal-order multicasting with example.	**07**
Q.2	**(a)**	State the advantages and disadvantages of Distributed Computing.	**07**
	(b)	What is meant by data marshalling? There are two components to data marshalling; name and describe each. Why is data marshalling necessary?	**07**
		OR	
	(b)	Write a java code for sender and receiver to illustrate the basic method calls for connectionless datagram socket.	**07**
Q.3	**(a)**	Explain Message System and Groupware distributed computing paradigms	**07**
	(b)	Explain the code segment to illustrate the syntax for: i) Joining a multicast group ii) Sending to a multicast group iii) Receiving messages sent to a multicast group. iv) Leaving a multicast group	**07**
		OR	
Q.3	**(a)**	State the key methods for DatagramSocket and DatagramPacket classes available in Java API.	**07**
	(b)	Explain the steps for building an RMI Application.	**07**
Q.4	**(a)**	What are cookies? Explain how they can be used for transferring session state data. Draw appropriate event/interaction diagram.	**07**
	(b)	What are Iterative server and Concurrent server? Differentiate between Stateful and Stateless server.	**07**
		OR	
Q.4	**(a)**	List the various mechanisms to allow the sharing of session state data among GGI scripts. Explain the mechanism of using hidden form fields for transferring session state data.	**07**
	(b)	Explain Client-server and RPC paradigm for Distributed Computing.	**07**
Q.5	**(a)**	What is XPath Axis? Explain 12 different axes name that XPath support.	**07**
	(b)	What is SOAP? Differentiate between SOAP web services and RESTful web services.	**07**

Q.5 **(a)** What is REST? What is the use of REST? Explain basic principles of RESTful service. **07**

(b) Given below is an XML document "books.xml". Write XQuery to extract relevant data from the XML document(Use FLWOR expression only) **07**

```
<?xml version= "1.0" encoding="UTF-8"?>
<mcabooks>

  <books price= '400'>
    <publisher>Pearson </publisher>
    <title>Distributed Computing</title>
    <author>M.L. Liu </author>
    <year> 2008 </year>
  </books>

<books price= '500'>
    <publisher>Tata McGraw Hill </publisher>
    <title>Database Management System</title>
    <author>Korth </author>
    <author>Silberchatz </author>
    <author>Sudarshan </author>
    <year> 2005 </year>
  </books>

<books price= '600'>
    <publisher>Pearson </publisher>
    <title>Fundamentals of Database System</title>
    <author>Elmasri </author>
    <author>Navathe </author>
    <year> 2004 </year>
  </books>
</mcabooks>
```

Write XQuery for the following(Use FLWOR expression only):
  i) Select all the titles and year of books published after 2004.
  ii) Find all the books with more than one author.
  iii) Select books whose price is larger than average.
  iv) For each author, return all titles of his books.

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