

Seat No.: _____

Enrolment No. _____

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. **07**
i) Synchronous send and Asynchronous receive
ii) Asynchronous send and Synchronous receive
- (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: **07**
i) Joining a multicast group
ii) Sending to a multicast group
iii) Receiving messages sent to a multicast group.
iv) Leaving a multicast group
- 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**

OR

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.
