

Seat No.: _____

Enrolment No. _____

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

Subject Code : 2640006

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) Attempt following

07

1. The situation which arises while fighting for the same resource by more than one client is known as _____.
 - a) Race Condition
 - b) Deadlock
 - c) Peer-to-peer communication
 - d) Resource Sharing
2. Which of the following does not belong to Archetypal IPC program interface ?
 - a) send
 - b) receive
 - c) connect
 - d) achieve
3. Which of the following partial sequence is correct for Distributed Computing paradigm ?
 - a) Message Passing → Object Request Broker → Collaborative Application
 - b) Collaborative Application → Object Request Broker → Message Passing
 - c) Object Request Broker → Message Passing → Collaborative Application
 - d) Collaborative Application → Message Passing → Object Request Broker
4. The method of Socket class which is used set the stream for receiving data is known as _____.
 - a) getOutputStream()
 - b) getInputStream()
 - c) setSoTimeout()
 - d) setReceivingStream()
5. The final layer on server side which is responsible for providing required data to the calling process is _____.
 - a) Presentation Layer
 - b) Application Logic Layer
 - c) Service Layer
 - d) Middle Layer
6. Which of the following range is kept for Multicast IP ?
 - a) 422.0.0.0 to 239.255.255.255
 - b) 224.0.0.0 to 239.255.255.255
 - c) 244.0.0.0 to 239.255.255.255
 - d) 220.0.0.4 to 239.255.255.255
7. XML schema used for specifying restrictions and allows customized data types is known as _____.
 - a) XML
 - b) DTD
 - c) XSLT
 - d) XSD

- (b) Write True or False 07
1. In RMI “lookup()” method is used to retrieve the object reference.
 2. WebServices are always utilized for returning presentation logic.
 3. XSLT can be utilized for creating Schema files.
 4. Most of the operations over HTTP are Synchronous Send and Asynchronous Receive.
 5. Stream Sockets can be utilized for creating connectionless as well as connection-oriented communication.
 6. The method which is used to join multicast group is “joinMulticastGroup()”.
 7. SOAP method call is encoded in XML and then embedded in an HTTP request.
- Q.2 (a) Briefly explain strengths and weakness of Distributed Computing 07
- (b) Explain the difference between Connection-oriented and Connectionless Communication 07
- OR**
- (b) Explain the difference between Client-server and Peer-to-peer paradigm 07
- Q.3 (a) Write program for Connection Requestor and Connection Acceptor using connectionless mechanism i.e. Datagram Sockets 07
- (b) Briefly explain Interprocess Communication and Event Synchronization 07
- OR**
- Q.3 (a) Write program for Connection Requestor and Connection Acceptor using connection-oriented mechanism i.e. Stream Sockets 07
- (b) 1. Explain the difference between Iterative and Concurrent Server 04
2. Explain the difference between Stateful and Stateless Server 03
- Q.4 (a) What do you mean by Reliable Multicasting ? Explain various types of reliable multicasting techniques 07
- (b) Briefly explain Java RMI Architecture in detail. 07
- OR**
- Q.4 (a) Explain various mechanisms for sharing session data among CGI scripts. 07
- (b) Describe transferring session state data using cookies with the help of diagram. 07
- Q.5 (a) What are Restful Web Services ? Explain in detail. 07
- (b) Explain various XQuery functions used for XML documents. 07
- OR**
- Q.5 (a) Create XSD file to map XML tags as per following structure. 07
- ```
<students>
 <stud id="101">
 <name> </name>
 <gender> ... </gender>
 <age> ... </age>
 </stud>
</students>
```
- Consider some restrictions while creating XSD file as follows
- It should allow any no. of <stud> tags
  - “id” attribute should not be repeated and must be an integer value
  - “name” element is string which can be any value
  - “gender” element should allow only “m”, “M”, “f” or “F”
  - “age” must be an integer value between 15 to 35
- (b) What is SOAP ? Explain the simple layout of SOAP request message 07

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