

GUJARAT TECHNOLOGICAL UNIVERSITY**M. E. Sem. – IInd - Examination – June/July- 2011****Subject code: 1720102****Subject Name: Distributed Computing & Application****Date: 24/06/2011****Time: 10:30 am – 01:00 pm****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) Discuss different principles of IPC. **07**
(b) Differentiate different forms of computing. **07**
- Q.2** (a) Draw and explain the architecture of J2EE. Also list the major component and services of J2EE. **07**
(b) Discuss different paradigms for distributed applications. **07**
- OR**
- (b) Write a Java code fragment that may appear in a main method to open a datagram socket for receiving a datagram of up to 100 bytes. **07**
- Q.3** (a) Draw and Explain servlet life cycle. **07**
(b) List and Explain basic APIs used in MPI with simple example. **07**
- OR**
- Q.3** (a) What is Servlet? List advantages of Servlet over CGI. Also explain Request object of Servlet. **07**
(b) Describe the three tier software architecture for client-server software. Explain the functionalities of each layer on each side. Why is it advantageous to encapsulate the logic of separate layers in separate software modules? **07**
- Q.4** (a) With the help of example explain how can we call stored procedure in java using JDBC? **07**
(b) Compare and contrast a local procedure call with a remote procedure call. **07**
- OR**
- Q.4** (a) Explain Model View Controller Architecture. **07**
(b) Write your own multicast application. Write an application such that multiple processes use group communication to carry out an election. There are two candidates: Jones and Smith. Each process multicasts its vote in a message that identifies itself and its vote. Each process keeps the track of the vote count for each candidate, including its own. At the end of election(when everyone in the group has voted), each process tallies the votes independently and displays the outcome on its screen(e.g. Jones 10, Smith 5). **07**
- Hand in the listings of your application and answer these questions:
- a. How does your design allow the participants to join a multicast group?
 - b. How does your design synchronize the onset of the election so that every process is ready to receive any vote cast by a member in the group?
 - c. In your run, do the independent tallies agree with each other? Can you assume that the tallies will always agree with each other? Explain.

- Q.5** (a) In the context of Java RMI, what is stub downloading? Why is it useful? **07**
(b) In the context of CORBA, what do the following acronyms stand for? For each acronym, provide the extended name and a brief description: CORBA, ORB, GIOP, IIOP, IOR, INS, POA. **07**
- OR**
- Q.5** (a) In the context of Java RMI, what is client callable? Why is it useful? **07**
(b) Compared to Java RMI, what are the main strengths of a CORBA facility, if any? What are its weaknesses, if any? **07**
