DHARMSINH DESAI UNIVERSITY, NADIAD
FACULTY OF TECHNOLOGY
B.TECH. SEMESTER VII [Information Technology]
SUBJECT: (IT 715) Distributed Computing

Examination	**: First Sessional**	**Seat No.**	**:**
Date	**: 01/08/2018**	**Day**	**: Wednesday**
Time	**: 2:30 to 3:45**	**Max. Marks**	**: 36**

INSTRUCTIONS:

1. Figures to the right indicate maximum marks for that question.
2. The symbols used carry their usual meanings.
3. Assume suitable data, if required & mention them clearly.
4. Draw neat sketches wherever necessary.

Q.1	**Do as directed.**	**[12]**
(a)	Can we change the inactivity time for TCP socket to initiate the Keep_Alive Probe early? If yes then write piece of code for same and also justify that, for which socket it has to be done.	**[02]**
(b)	Explain the concept of Memory Mapped File.	**[02]**
(c)	Discuss the different byte ordering functions with its signature.	**[02]**
(d)	List out the advantages of shared memory over PIPE and FIFO for inter process communication	**[02]**
(e)	Which process goes in to Time_Wait state in case of TCP communication? Also write significance of Time_Wait state.	**[02]**
(f)	Arrange the following distributed paradigms according to level (high to low) of abstraction: i) object space (ii) remote method call (iii) client-server (iv) CORBA	**[02]**

Q.2	Attempt Any Two following questions.	**[12]**
(a)	Discuss the behavior of connect system call in following cases, 1) Server Process is crashed 2) Server Host is crashed and how client process is notify when such event is occurred. Also write code snippet for printing those error on console of client.	**[06]**
(b)	Implement Echo client-server program using TCP Protocol.	**[06]**
(c)	a) Explain with Figure: How requests from multiple clients can be handled by the server using FIFO? b) Differentiate between RPC, RMI, and CORBA approaches for distributed computing.	**[06]**

Q.3	Attempt following questions	**[12]**
(a)	Implement client server file -upload application using UDP protocol where client will send the content of any text file along with filename to server server will read content and save it to the Text file on server's hard drive. Once file is saved server will reply with the location of file to the client and client program print it on console.	**[06]**
(b)	Implement File Transfer application using PIPE. The client takes file name from console and sends it to server. The server opens the file and returns the contents of the file to client. The client displays the contents on the console.	**[06]**

OR

Q.3	Attempt following questions	**[12]**
(a)	Draw and discuss the behavior of close function when SO_LINGER option is set. Also discuss the scenario where TCP four packet termination sequence will not be followed. Also write significance of shutdown function.	**[06]**
(b)	Implement the System Logger application using POSIX shared memory. Both client and server processes maps shared memory to its address space. When a client wants to log a message, it creates a string in the format <client pid><timestamp><message> and writes the string in the shared memory object. The server reads strings from the shared memory object, one by one, and writes them in a log file.	**[06]**