Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

ME SEMESTER – I EXAMINATION – SUMMER 2017

Subject Code:3715202 **Date:08/05/2017**

Subject Name: Network Programming

Time:02:30 p.m. to 05:00 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)**	1. Explain the working of 'fork' function.	**02**
		2. What are the daemon processes?	**02**
		3. What is byte ordering? How to know the byte ordering of a system?	**03**
	(b)	1. What is broadcasting? List out applications those use it.	**02**
		2. What is race condition? How it can be solved?	**02**
		3. What are 'signals'? List out the conditions that can generate signals.	**03**
Q.2	**(a)**	1. Briefly explain IPv4 socket address structure.	**03**
		2. Briefly explain the socket functions for UDP client/server.	**04**
	(b)	Draw the timeline of the typical scenario that takes place between a TCP client and server and explain the socket functions involved in it.	**07**
		OR	
	(b)	Draw TCP's state transition diagram and explain each state in detail.	**07**
Q.3	**(a)**	1. How do we create 'pipes'?	**03**
		2. Explain the creation of coprocess with an example.	**04**
	(b)	What is Inter Process Communication? List out and explain various methods of IPC.	**07**
		OR	
Q.3	**(a)**	1. What are message queues?	**03**
		2. How are semaphores useful?	**04**
	(b)	Explain client server communication using FIFO.	**07**
Q.4	**(a)**	Explain the process of TCP connection establishment.	**07**
	(b)	Develop UDP server program to simulate the functionality of DNS server.	**07**
		OR	
Q.4	**(a)**	Explain the process of a TCP connection termination.	**07**
	(b)	Explain remote procedural calls in detail.	**07**
Q.5	**(a)**	Explain unicast versus broadcast with an example.	**07**
	(b)	Discuss various design issues in maintaining concurrency in server and clients.	**07**
		OR	
Q.5	**(a)**	Explain Multicasting versus Broadcasting on a LAN	**07**
	(b)	Write a concurrent server program that handles multiple clients for file transfer application using TCP sockets.	**07**

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