Seat No.: _____ *Enrolment No._____*

GUJARAT TECHNOLOGICAL UNIVERSITY

M. E. - SEMESTER – I • EXAMINATION – WINTER • 2013

Subject code: 715101 **Date: 23-12-2013**

Subject Name: Network Programming

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)**	Name the seven layers of OSI and explain them briefly with suitable diagram.	**07**
	(b)	Explain TCP connection establishment and connection termination process.	**07**
Q.2	**(a)**	Explain byte manipulation functions in detail.	**07**
	(b)	How do you test your socket client server application if your computer is not connected in network? Give explanation on /etc/hosts file. What is the significance of loopback address?	**07**
		OR	
	(b)	Explain in detail:	
		i. DNS	**04**
		ii. DHCP	**03**
Q.3	**(a)**	Explain TCP states with diagram.	**07**
	(b)	What is multicasting? How does socket multicasting work? Explain in detail.	**07**
		OR	
Q.3	**(a)**	Write a short note on Zombie process with appropriate example. Which Linux command would be useful to list out zombie process of the system?	**07**
	(b)	What is socket? Explain its role over client and server programming. Describe the APIs for UDP communication.	**07**
Q.4	**(a)**	Explain multicast MAC address structure. What will be the destination MAC address if multicasting IP is 224.0.9.45? Explain in detail.	**07**
	(b)	Explain:	
		i. sockaddr_in socket address structure	**03**
		ii. SIGSTOP signal	**02**
		iii. Data link Provider Interface	**02**
		OR	
Q.4	**(a)**	Write a C program to Create 5 children processes from a common parent and ensure that the parent terminates after cleaning all the terminated children using waitpid().	**07**
	(b)	What is XDR? Why do we need it? Explain with suitable example.	**07**
Q.5	**(a)**	How to get client's address / host-name from server socket application? Explain with suitable APIs.	**07**
	(b)	Explain libpcap and libnet libraries in detail.	**07**
		OR	
Q.5	**(a)**	Create echo server (TCP) with using appropriate socket APIs.	**07**
	(b)	Explain the word ‘protocol’. Name at least three protocols in each layer of TCP/IP model. And describe their functionalities brief.	**07**

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