

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**
