**SEMESTER - VI**

**NETWORK PROGRAMMING LAB**

**LAB CYCLE**

**Day 1**. Familiarise the basics of network configuration files and networking commands in Linux.

Question 1 : Write the functions of following network configuration files

● /etc/init.d/network

● /etc/sysconfig/network

● /etc/sysconfig/network-scripts

● /etc/sysconfig/network-scripts/ifcfg-eth0

● /etc/nsswitch.conf

● /etc/hosts

Question 2: Linux Networking Commands: Write the syntax & explain the need of following Networking

Commands

● Ping

● Ifconfig

● Traceroute

● Netstat

● Nslookup

● Route

● Host

● Iwconfig

● Hostname

● nload

**Day 2**. Familiarize and understand the use and functioning of system calls used for network programming in Linux.

Question 1: Process management: Write a C program to implement fork, exec, getpid, exit and wait system calls.

Question 2: Directory management: Write a C program using opendir, readdir and closedir system calls.

Question 3: File Management: Write a C program for copying a file into another using I/O system call.

**Day 3**. Implement client-server communication using socket programming and TCP as transport layer protocol

**Day 4**. Implement client-server communication using socket programming and UDP as transport layer protocol

**Day 5**. Simulate sliding window flow control protocols (Stop and Wait, Go back N, Selective Repeat ARQ protocols)

**Day 6**. Implement and simulate algorithm for Distance Vector Routing protocol or Link State Routing protocol.

**Day 7**. Implement Simple Mail Transfer Protocol.

**Day 8**. Implement File Transfer Protocol.

**Day 9**. Implement congestion control using a leaky bucket algorithm.

**Day 10**. Familiarize the Wireshark tool.

**Day 11**. Design and configure a network with multiple subnets with wired and wireless LANs using required network devices. Configure commonly used services in the network.

**Day 12**. Study of NS2 simulator

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

Operating System to Use in Lab : Linux

Compiler/Software to Use in Lab :GCC, NS2

Programming Language to Use in Lab : Ansi C