

NETWORK LABORATORY

Lab Hours/ Week	: 3	Credits :	1.5
Sub. Code	: 7ISL1	CIE Marks :	50
		SEE Marks :	50

Course Outcomes:

Upon completion of this course the student will be able to:

CO1: Analyze the data from a live network or from captured file disk using a network protocol analyser.

CO2: Analyze the behavior of network/protocols under different conditions using a network simulator.

CO3: Develop and **analyze** the code for network algorithms using any programming languages.

CO4: Develop Client server program using socket and FIFO files.

CO5: Demonstrate network utilities to diagnose TCP/IP problems or to find the information.

Part – A

The Following experiments are conducted using NS.

1. Simulate a three nodes point to point network with duplex links between them. Set the queue size and vary the bandwidth. Determine the total number of packets dropped.
2. Simulate a network topology with the links connected as follows:



Apply TCP agent between S1-S4 and UDP between S2-S3. Apply relevant applications over TCP and UDP agents. By varying the parameters, determine the packet delivery fraction for TCP and UDP.

3. Simulate the different types of Internet traffic such as FTP and TELNET over a network. Plot and analyze the instantaneous throughput using Xgraph.
4. Simulate any topology of N nodes (6-10), change error rate and data rate and compare the throughput of the link where error is introduced.
5. Simulate a topology of n nodes and plot the congestion window (use slow start) for each source – destination pair.

6. Simulate the transmission of ping messages over a network of N nodes and find the round trip time of each ping message.

Part – B

Implement the following in C++/Java

1. Using TCP/IP sockets, write a client – server program, the client sends the file name and the server sends back the content of requested text file if present.
2. Using FIFO files as IPC channel, write a client – server program, the client sends the file name and the server sends back the content of requested text file if present
3. For the given network graph, write a program to implement Distance Vector routing algorithm to build a routing table for the given node.
4. Write a program for frame sorting technique used in buffers.
5. Write a program for simple RSA algorithm to encrypt and decrypt the data.
6. Write a program for error detecting code using CRC-CCITT (16- bits).