**Computer Networks & Protocol (21EC63)**

**Lab Question bank**

1 a) Write a C program to implement Bit stuffing and De-stuffing.

b) Design a Network topology and document an addressing scheme based on requirements.

Apply IPv4 configuration to the devices using packet Tracer for given network topology.

NOTE: Use Class B Addresses

2 a) Write a C program to implement Character stuffing and Destuffing.

b) Design a Network topology and document an addressing scheme based on requirements.

Apply IPv4 configuration to the devices using packet Tracer for given network topology.

NOTE: Use Class c Addresses

3 a) Write a C program to implement Cyclic Redundancy checksum. Use the generator polynomial

x 16 +x 12 +x 5 +1. The data sequence is 10011.

b) Design a Network topology and document an addressing scheme for VLAN.

Apply a IPv4 configuration to the devices for inter VLAN Routing using packet Tracer for given network topology. NOTE: Use Class A Addresses

4 a) Write a C program to implement Prims Minimum Spanning tree algorithm for the given network.

b) Design a Network topology and document an addressing scheme for VLAN.

Apply a IPv4 configuration to the devices for inter VLAN Routing using packet Tracer for given network topology. NOTE: Use Class A Addresses

5 a) Write a C program to implement Kruskal’s Minimum Spanning tree algorithm for the given network.

b) Design a Network topology and document an addressing scheme based on requirements.

Apply IPv4 configuration to the devices using packet Tracer for given network topology.

NOTE: Use Class B Addresses

6 a) Simulate & Analyze CSMA/CD and CSMA/CA Protocols using QualNet, Calculate the Number of retransmissions in each topology.

b) Write a C program to implement Prims Minimum Spanning tree algorithm for the given network.

7 a) Simulate & Analyze CSMA/CD and CSMA/CA Protocols using QualNet, Calculate the Number of retransmissions in each topology.

b) Write a C program to implement kruskal’s Minimum Spanning tree algorithm for the given network.

8 a) Design a Network topology and document an addressing scheme based on requirements.

Apply IPv4 configuration to the devices using packet Tracer for given network topology.

NOTE : Use Class B Addresses

b) Write a C program to implement Kruskal’s Minimum Spanning tree algorithm for the given network.

9 a) Design a Network topology and document an addressing scheme for VLAN.

Apply a IPv4 configuration to the devices for inter VLAN Routing using packet Tracer for

given network topology. NOTE: Use Class A Addresses

b) Write a C program to implement Character stuffing and De-stuffing.

10 a) Study and Analyse the performance of CSMA/CD & CSMA/CA protocol using QUALNET

for similar traffic.

b) Write a C program to implement Character stuffing and De-stuffing.

11 a) Design and document an addressing scheme based on requirements.

Apply IPv4 configuration to the devices using packet Tracer for given network topology.

NOTE : Use Class C Addresses

b) Write a C program to implement Cyclic Redundancy checksum. Use the generator polynomial

x 8 +x 7 +x 4 +x 3 +x+1. The data sequence is 11010011101100.

12 a) Design a Network topology and document an addressing scheme based on requirements.

Apply IPv4 configuration to the devices using Packet Tracer for given network topology.

NOTE: Use Class A Addresses

b) Design a Network topology and document an addressing scheme for VLAN.

Apply IPv4 configuration to the devices for intra VLAN Routing using Packet Tracer.

NOTE: Use Class C Addresses

13 a) Write a C program to implement Prim’s Minimum spanning tree algorithm for the given

Network. Calculate the optimal total cost of tree between two nodes.

b) Study the performance of network (with 6 Nodes) for CSMA/CA protocol and compare

Throughput with CSMA/CD protocol through simulation using QUALNET

14a) Design a Network topology and document an addressing scheme based on requirements.

Apply IPv4 configuration to the devices using Packet Tracer for given network topology.

NOTE: Use Class B Addresses

b) Write a C program to implement Cyclic Redundancy checksum. Use the generator polynomial

x 16 +x 10 +x 8 +x 7 +x 3 +1. The data sequence is 11010011101100

15a) Write a C program to implement Character stuffing and De-stuffing.

b) Study the performance of network (with 6 Nodes) for CSMA/CA protocol and compare

Throughput with CSMA/CD protocol through simulation using QUALNET

16 a) Design an Ethernet network comprising of 25 nodes and calculate Packet delivery ratio

Given the packet size to be 1024 bytes, consider the following application layer protocols

i. FTP

ii. CBR

b) Write a C program to implement Character stuffing and Destuffing.

17 a) Write a C program to implement Cyclic Redundancy checksum for a data word of 1101101

with divisor 10101.

b) Design a Network topology and document an addressing scheme for VLAN.

Apply IPv4 configuration to the devices for intra VLAN Routing using Packet Tracer.

NOTE: Use Class C Addresses

18 a) Implement Substitution method Encryption and Decryption algorithms using C program.

b) Design a Network topology and document an addressing scheme based on requirements.

Apply IPv4 configuration to the devices using Packet Tracer for given network topology.

NOTE: Use Class A Addresses

19 a) Implement Transposition method Encryption and Decryption algorithms using C program.

b) Design a Network topology and document an addressing scheme based on requirements.

Apply IPv4 configuration to the devices using Packet Tracer for given network topology.

NOTE: Use Class A Addresses