**COMPUTER NETWORKS LABORATORY WITH MINI-PROJECT**

**SEM: 5 COURSE CODE: 18CS5DLCNL**

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| **Sl No.** | **Contents of the Experiment** |
|  | **PART-A** |
|  | Analyze VLAN communication using CPT  a) Sketch and Simulate three VLANS  b) Setup an extended VLAN using Trunk Interface  c) Inter VLAN Routing |
|  | Setup a Router based wide area network using Dynamic routing (all three RIP, EIGRP, and OSPF).Set up a network and Configure routing in each router and test the network. |
|  | Practice IP addressing principles.   1. Set up a Subnet (N1) comprising 4 nodes. Change the subnet masks in some of the nodes and test the network. Set up another Subnet (N2) of 4 nodes;   Connect these two Subnets using a router.   1. Create 4 equal sized subnets in the subnet N1 and test the network. |
|  | Implement DHCP and DNS.  a) A client, single DNS server and a Web Server  b) A client, two DNS servers and a Web Server  c) A client and a hierarchy of DNS servers and a Web Server |
|  | Implement Static NAT, Dynamic NAT and PAT |
|  | **PART-B** |
|  | Write a C/C++ program to implement the data link layer framing methods.  A) bit stuffing B) Character stuffing |
|  | Write a C/C++program to implement Distance Vector Routing Algorithm. |
|  | Write a C/C++ Program To Implement Stop and Wait Flow Control Protocol. |
|  | Write a C/++ Program for ERROR detecting code using CRC-CCITT (16bit). |
|  | Write a C/C++ Program for Congestion control using Leaky Bucket Algorithm. |