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**Computer Networks Lab Class: T. E. Computer**

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| **Group A** | | | | |
| **1** | **Part A:** Setup a wired LAN using Layer 2 Switch and then IP switch of minimum four computers. It includes preparation of cable, testing of cable using line tester, configuration machine using IP addresses, testing using PING utility and demonstrate the PING packets captured traces using Wireshark Packet Analyzer Tool.  **Part B:** Extend the same Assignment for Wireless using Access Point |  |  |  |
| **2** | Write a program for error detection and correction for 7/8 bits ASCII codes using Hamming Codes or CRC. Demonstrate the packets captured traces using Wire-shark Packet Analyzer Tool for peer to peer mode. |  |  |  |
| **3** | Write a program to simulate Go back N and Selective Repeat Modes of Sliding Window Protocol in peer to peer mode and demonstrate the packets captured traces using Wire-shark Packet Analyzer Tool for peer to peer mode. |  |  |  |
| **4** | Write a program to demonstrate subletting and find the subnet masks. |  |  |  |
| **5** | Write a program using TCP socket for wired network for following  a. Say Hello to Each other  b. File transfer  c. Calculator (Arithmetic)  d. Calculator (Trigonometry)  Demonstrate the packets captured traces using Wireshark Packet Analyzer Tool for peer to peer mode. |  |  |  |
| **6** | Write a program using UDP Sockets to enable file transfer (Script, Text, Audio and Video one file each) between two machines. Demonstrate the packets captured traces using Wire-shark Packet Analyzer Tool for peer to peer mode. |  |  |  |
| **7** | Write a program to analyze following packet formats captured through Wire-shark for wired network.  1. Ethernet  2. IP  3.TCP  4. UDP |  |  |  |
| **8** | Write a program for DNS lookup. Given an IP address input, it should return URL and vice- versa. |  |  |  |
| **9** | Installing and configure DHCP server and write a program to install the software on remote machine. |  |  |  |
| **Group B** | | | | |
| **10** | Write a program using TCP sockets for wired network to implement  a. Peer to Peer Chat  b. Multiuser Chat  Demonstrate the packets captured traces using Wire-shark Packet  Analyzer Tool for peer to peer mode. |  |  |  |
| **11** | Write a program using UDP sockets for wired network to implement  a. Peer to Peer Chat  b. Multiuser Chat  Demonstrate the packets captured traces using Wire-shark Packet  Analyzer Tool for peer to peer mode. |  |  |  |
| **12** | Use network simulator NS2 to implement:  a. Monitoring traffic for the given topology  b. Analysis of CSMA and Ethernet protocols  c. Network Routing: Shortest path routing, AODV.  d. Analysis of congestion control (TCP and UDP). |  |  |  |
| **13** | Configure RIP/OSPF/BGP using packet Tracer. |  |  |  |

Practical In charge H.O.D.

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