IIT PALAKKAD

COMPUTER SCIENCE AND ENGINEERING
Indian Institute of Technology, Palakkad
CS4150: Computer Networks Lab
Lab 1 (Overview)

1. Read the man pages for the following commands: **arp ifconfig route host ping tcpdump** and **netstat**. Study the different options associated with each command. Explain each of the above commands in 2-3 sentences. [25]

2. Follow the below instructions to set up a virtual network and write down the interfaces (along with IP address) of each of the VMs in this network: [20]

   - Download the file "lab1_network.tar.xz" from the folder lab1.
   - Extract this file and step into the extracted directory.
   - Setup the virtual machines by issuing the command "./setupVMs.sh"
   - Start the virtual machines by issuing the command "./startVMs.sh"
   - There are 6 VMs in this network namely **h1**, **h2**, **h3**, **h4**, **h5**, **r1**, **r2**, **r3**. The first 5 VMs are hosts and the rest are routers. You can connect to VM **x** by issuing the command "./connect.sh **x**".

3. Deduce and write down the complete network topology, including details about interfaces, IP address, subnet, and MAC address. [30]

4. Does this network have an authoritative DNS server? If yes, give its IP and the port it is listening on. [5]

5. Find out the IP address for domain "www.google.com". What is the IP address of the first hop node on the path to "www.google.com"? [5]

6. List the ports on which services are listening on each VMs, and also identify these services. [10]

7. Do a reverse DNS lookup on all the IPs in the virtual network and note them down. [5]

End of paper