Experiment 1

CHECKING INTERNET SPEED ON WINDOWS

• To check the internet speed on your Windows PC, connect your router to PC via the ethernet cable, or you can just check Wi-Fi network also

•Clickon connectednWi-fi icon at the bottom right corner of the PC.

•Clickon properties and scroll down to see receive/transmit speed:

Experiment 2

Manual and Automatic address assignment (Windows) a)IPv4address b)Subnetmask c)DNS Automatic address assignment:

•Automatically obtainingan IP Address from a DHCP (DynamicHostConfigurationProtocol) server such as a router is an easy way to connect computer to the network.

•Instead of manually entering the IP Address ,Subnetmask ,and Default gate way ,these can be automatically assigned by the DHCP server.

•To do this ,you need to set the network adapter on your computer to obtainan IP Address automatically .

Step1: Right click the Network icon located on the Desktop screen then click Open Network and Sharing Center.

Step2: click change adapter settings.

Step3: right click on the local area connection and

And click properties

Step4:On the Local Area Connection Properties window, select Internet Protocol Version4 (TCP/IPv4) then click Properties.

Step5:Select a radio button beside Obtainan IP address automatically then click OK.

Manual address assignment:

•Repeat the steps 1to4 of Automatic address assignment.

•Select the“Use the following IP address”option, and then type in the IP address ,subnetmask ,and default gate way that corresponds with your network setup.

•Next, type in your preferred and alternate DNS server addresses .Finally, select the“Validate setting supon exit”option so that Windows immediately checks your new IP address and corresponding in formation to ensure that it works .When you’ reready ,click the“OK”button.

Experiment3

Manual and Automatic address assignment (Android)

a) IP v4 address b) Subnet Mask C)DNS

Automatic address assignment:

•Autamaticelly obtaining an IP Address from DHCP (Dynamic host configuration a Protocal)Server Such as a router is an easy way to connect Mobile to the Network.

• Instead of manually entering the IP address Default gete way DNS I and DNS 2 these Can be automatically assigned by the DHCP Server

Manual address assignment:

•HOW do I set up a static IP address.on my android device

•The steps will very with defferent versions of android this dowmention is based on android version ll.

1) go to Settings

2) select Network & internet then Wi-Fi

3) Tap on the network you are currently connected to open the Setting menu

Experiment4

Determine the IP Address Configuration of a Computer(Windows) and Test the Network Interface TCP/IP Stack(Ping)

•Internet protocol configuration (ipconfig)is one of the most valuable tools used to check and trouble shoot basic TCPIP settings and this command displays all the IP configuration details of the windows machine.

•TheTCPIP stands for Transmission Control Protocol/Internet Protocol and it is a set of networking protocols that allows communicating multiple computers.

•ipconfig is one of the most valuable tool available to check and trouble shoot basic TCP/IP settings. •Ipconfig syntax[I p ara meter]

Step1:Click on the Windows key to open start and search and the click on the Command Prompt which is shown in the below image

Step2:Type ip config command and press enter

To get details of IP sulenet make and default get every address

Testings TCP/IP protocol stack :Using ping

•The ping utility provided with many TCP/IP packages is use ful for testing the IP network layer. •Ping take as an argument an IP address and attempts to send a single packet to the name dIP protocol stack.

•First,determine if your own protocol stackis operating correctly by “pinging” your own computer.For example, if your IP address is192.168.43.190,enter ping 192.168.43.190at command prompt and wait to see if the packets are routed at all .If they are,the out put will appear similar to the following.

•If the ping works,then the computer is able to route packets to it self.

This is reasonable Computer Networks Lab Manual is set up correctly.

Experiment5

Install Network simulator link.cisco Packet toacer create simple network in simulation create and demonstrate all possible network topologies using Simulator.

Installing pacter toracer:.

•Download packet tracer which is appropriate for your operating system i.e windows

•installation in windows in pretty simple and straight forward; the setup coms in a single file named pocket tracer Setup 7, 3.0.ex.

•open the file to begin the setup.wized accept the licence aggureament choose a location and start the installation

create aple Simple Network in simualater:

•Disign & create simple network as shown below

o/p: check For Succeful connection on Singing to any pc through its Ip

Network topology

1.star topology 2. Bus topology 3. Ring topology

Experiment6

Create aweb Server using simulator and connect to it and connect to it and observe how packets are send across the internet using IP address

creating network containg web server:

•Bulid a Network using APC, Switch wed Server and DNS server

•connect them using straigh through cable

Assigning IP address and DNS. address and service cofiguration

Web Server

•Assign IP and DNS server addres
•Turn on HTTP & HTTPS in service tab
•choose a html file and oversite it and save
DNS server
•Assings IP And DNS server address
•confing DNS turn on DNS Service
•Then go to service tab then, Them Select DNS
•Provide a resources (URL) Name as
•Provide IP address for that URL from Where to access
•And finally add to resource records
verification by accesing web page in PC
•Open web browser in PC
•Then enter URL as Network or 192.168.12

Experiment7

Build a simple Poes to peer network and verify physical connectivity and assign various IP address to host and verify communication bet ween two devices by using pathPing command

Building a simple peer to peer network
•Build a peer to Peer Network using
Two end devices
•Then connect each other using Crossover cable
Then the assign address to bath the PCS
•Now use ping command in CMD to varify connection
•Open CMD and type ping 192.192.43.6
use ping command in cмD то verify The latency and actual Path blw Source
•open cмD and type path ping192.198.43.6

Experiment8

Crimping of RJ45:Straight and Cross .a)Punching Cat 6 cable to I/O Box.Use punching tool. b)Check connectivity Using LAN tester

=Crimping is the process of connecting RJ(Registered Jack)45 connector to the Ethernet cable using crimping tool .Generally there are two types of crimping

Straight Through Crimping and

*Cross Over Crimping

*For Connecting two computers to transfer the data we have to use connectors on both ends of a cable .Generally ,the connectors are male-female type to ensure reliable connection .The standard connector for unshielded twisted pair cabling is an RJ 45 connector which is made up of plastic and looks like a large telephone style connector. Although RJ 45 is used for a variety of purposes, but the RJ 45 connector is most commonly used for 10 Base-T and 100 Base-TX Ethernet connections .RJ-45 Connector and its Pin Position

Straight Through Crimping

This type of crimping is used when we want to connect unlike devices i.e.,computer to switch,computer to hub,router to switch,witchcraft.,

T-568A Straight Through Crimping and its Pin Connection

Experiment9

create a client server model using simulator and abserve the client interaction between the server and PC

building a network of client server

•build a network using SPC's(clients switch and a server (client server)
•connect them using straight through cable. Configuring client server
•assign IP address
•DHCP configuration
•go to DHCP settings in server tab
•set default gateway as the IP address of the client server.
•Set start IP address as 192.168.1.101
•set maximum user to 25 max limits
•save the changes
•then go to HTTP settings
•and edit any of HTML file to verify configuration from client PC'S

configuring client PC'S

•open IP configuration
•choose DHCP IP assignment option to all of client PC'S
=after all configuration and setting test and verify the communication by simulation
=and also confirm the communication by accessing webpage through IP address as PC'S

Experiment10

create a model a simple Ethernet networking using 3 nots and a switch

observe trafic behaviour on the network and observe Ethernet brand cost and brod cost domain ARP(MAC address)

Procedure

*create a simple Ethernet networking
•build a network essing there PC'S (hosts)and switch
•connect then using straight through cable
* configuring hast's PC'S
•open in configuration all of hosts PC'S
•after all configuration and setting
* set and verify the communication by simulation
•now use ping command is CMD to verify connection
open CDM and type ping 120.168.1.2
o/p check for successful connection on pinging to any pc through its IP address

Experiment11

Build a physical Etherpet LAN or wires Network and demonstrate file staring and printer Sharing

Building a LAW Networ

Connect computer and printer using Physical ethinet or nsing wireless accesses print (wifi.)
Eunsose the connection is established properly without any distrbancs and encors
Enabling printer and file Sharing
Here are the steps to enable file and printer sharing in windows 7-8 and 10

1) click the Start button typeconted Panet and Press Enter
This SKP opens the control panel
2)click the network and internet ico
3) double-click the network and Sharing center icon and then click change advanced shoring settings. this step opens the advanced Sharry settine Settins page which lists network settings for each Network your connected to
•From a home windows computer ruming windows two Networks are listed Home or work and public
• In window 8 and 10: the Home or Work Network IS colle private
• for a computer connected to a domain network not work:A thired network listed named domainis listed
4)Click the down arrow next to the network you want to cable file and printer
•for a home compute : click the down arrow next to to home or work or printout (windows and b)
•For a computer connected to a domain Network click the down Arrow next to Benain

The figure shows to seltting for a Damain Network the setting for network a home or work network are the Some Do not enoble file or printer Sharing for the public Network exposes you computer's data to other USers on the same public network
5. Select the turn on file and shering Printer option
6.Click the Save changes button this bottonsoves your changes and closec the advances shoring Setting page
Sharing files
•after enabling file sharing and printer sharing •select a particular disk drive to be shared
• go to the properties of particular drive
• then select sharing
•click on advance sharing options
•allow all connected devices connected in network and permit the access
•apply all changes and save to share the device

T-568AStraightThroughConnection

Pin Num.	Connector 1(T-568A)	Connector 2(T-568A)
01	WhiteGreen	WhiteGreen
02	Green	Green
03	WhiteOrange	WhiteOrange
04	Blue	Blue
05	WhiteBlue	WhiteBlue
06	Orange	Orange
07	WhiteBrown	WhiteBrown
08	Brown	Brown

T-568BStraightThroughConnection

Pin Num.	Connector 1(T-568B)	Connector 2(T-568B)
01	WhiteOrange	WhiteOrange
02	Orange	Orange
03	WhiteGreen	WhiteGreen
04	Blue	Blue
05	WhiteBlue	WhiteBlue
06	Green	Green
07	WhiteBrown	WhiteBrown
08	Brown	Brown