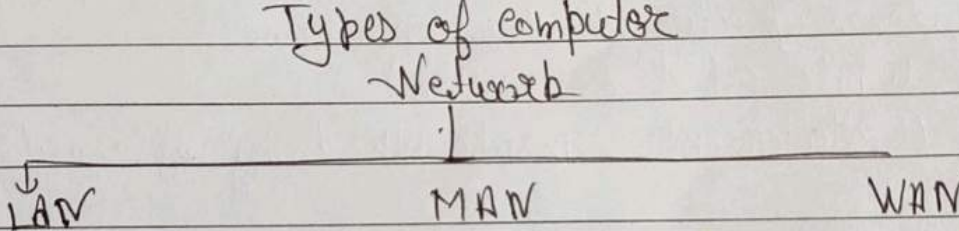
ASHOKA
Date:
Page No.

CCA-102 : Data Communications
ASSIGNMENT

Q1 What are the different types of networks?
A computer network is a group of computers connected with each other through a transmission medium such as cable etc. in this guide we will discuss the types of computer networks in detail

2



There are mainly three types of computer Networks based on their size

1 Local Area Network (LAN)
2 Metropolitan Area Network (MAN)
3 Wide area network (WAN)

1 Local Area Network (LAN) :- Local area network is group of computers connected with each other in small place such as school, hospital, apartment etc

2 LAN is secure because there is no outside connection with the local area network thus the data which is shared is safe on the local area network and can't be accessed outside

3 LAN due to their small size are considerable faster their speed can range any where from 100 to 100 mbps.

ASHOKA
Date:
Page No.

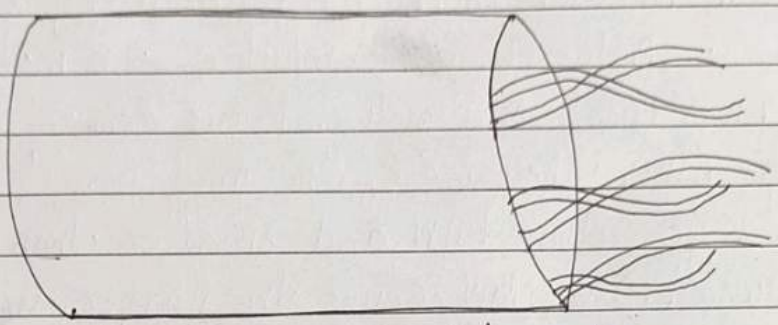
4 LAN are not limited to wire connection there is a new evolution to the LANs that allows local area network to work on a wireless connection.

2 MAN Metropolitan Area Network
MAN network covers larger area by connection LAN to a larger network of computers. In metropolitian area Network various local area networks are connected with each other through Phone lines. The size of the metropolitan area network is larger than LAN and smaller than WAN (wide area network) a MAN cover the larger area of acity of town

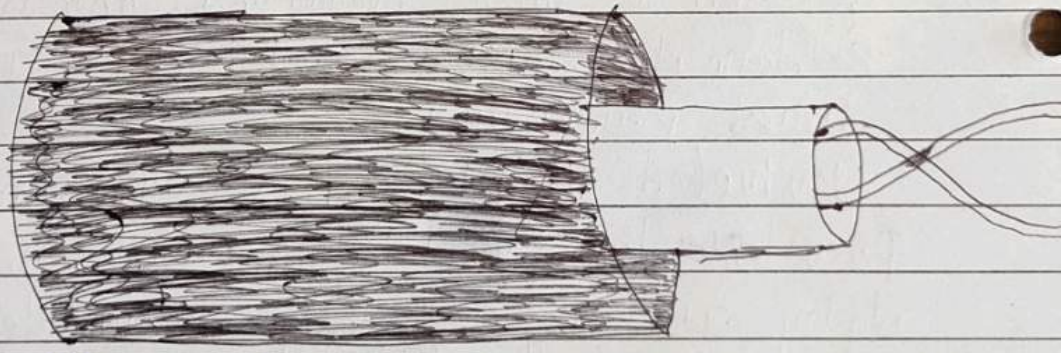
3 Wide area network (WAN)
Wide area network provide long distance transmission of data the size of the WAN is larger than LAN and MAN. A MAN A WAN can cover country, continent or even a whole world. Internet connection is an example of WAN. other examples of WAN are mobile broadband connection such as 3G 4G etc
Explain the shielded twisted pair (STP) and Unshielded twisted Pair (UTP)
Unshieled twisted Pair (UTP) (cable) is the most prevalent type of telecommunicated medium in use today. Its frequency range is suitable for transmiting both data and voice. therefore these are most commonly used in telephone system A twisted pair consists of two insulated conductors usually copper in a twisted configuration. Color bands are used in plastic insulation for identification in addition, colors also identify the specific conductors in a cable and to indicate which

wire belong in pairs and now they relate to other pairs in a larger bundle.

Unshielded Twisted Pair cable



Shielded twisted-pair (STP) cable → has an additional braided mesh coating or metal foil that wraps each set of insulated conductors. the metal casing intercepts the penetration of electromagnetic noise. It also can eradicate a phenomenon called cross talk which is the unwanted effect of one circuit (or channel) on another circuit (or channel).



3 → what is difference between base band and broadband transmission?

ASHOKA
Date:
Page No.

3

S.No	BROADBAND TRANSMISSION	BASEBAND TRANSMISSION
1	In broadband transmission. The type of signaling used is digital	In baseband transmission, the type of sigaling used is analog
2	Broadband Transmission is bidirectional in nature	Baseband Transmission is unidirection in nature
3	Signals can only travel over short distances.	Signals can be travelled over long distances without being attenuated.
4	It works well with bus topology in broadband transmission manchester and Differential it is used with a bus as well as free topology	only PSK Encoding is used.
5	Manchester encoding are used.	

4 What is the difference between a chub modean. router and switch

1 Repeater → A repeater operater at the Physical layer. Its is to regenrate the signal over the same network before the signal becomes too weak or corrupted

ASHOKA
Date:
Page No.

So as to extend the length to which the signal can be transmitted over the same network An important point to be noted about repeaters is that they do not regenerate do not amplify the signal. When the signal becomes weak they copy the signal bit by bit and regenerate it at the original strength. it is a 2 Port device

2 Hub A Hub is basically a multiport repeater. A Hub connects multiple wires coming from different branches. for example the connector stations Hubs cannot filter data. So data Packed are send to all connected device. In other words of all hosts connected through Hub remain one also, they do not have intelligence to find out best path for data Packets which leades to inefficies in wastage

3 Switch - A Switch is a multiport bridge with a buffer and a design that can boost its efficency. ca large number of ports imply less traffic and performance A Switch is a data link layer device. the switch can perform error checking before forwarding data that makes it very efficient as it does not forward Packets that have errors and forward good packed selectively. to correct Port only. in other words Switch divides.

4 Routers - A router is a device like a Switch that routes data Packets based on their IP addresses. Router is mainly a Network layer device. Router normaly connect LANS and WANS together. and have a dynamically updating routing table based on which they make decisions of routing the data Packets Router divide broadcast.

ASHOKA
Date:
Page No.

domains of hosts connected through it

5 When you move the NIC cards from one PC to another PC. does the MAC address gets transferred as well. When you move the NIC cards from one PC to another PC. does the mac address gets transferred as well. Yes that's because MAC addresses are hard-wired into the NIC circuitry not the PC. this also mean that a PC can have a different MAC address when another one replaced the NIC card

6 When troubleshooting computer network problems, what common hardware related problems can occur?
Network Troubleshooting in this tutorial we are only concerned about the computer networking fault diagnosis and rectification Based on the type of issue we will discuss its troubleshooting steps and tips

Basic Network Problems
Cable Problem: The cable which is used to connect two devices can get to faulty, shortened or can be physically damaged.
Connectivity Problem: The port or interface on which the device is interface on which the device is conneted are configured can be physically down or faulty due to which the source host will not be able to communicate with the destination host

ASHOKA
Date:
Page No.

Configuration issue - Due do a wrong configuration looping the IP routing Problem and other configuration issues network fault may arise and the service will get affected
Software issue - Owing to software compatibility issues and version mismatch the transmission of IP data packets between the source and destination is interrupted
Traffic overload -> if the link is over utilized then the capacity or traffic on a device is more than the carrying capacity of it and due to overload condition will start behaving abnormally
In a network that contains two serves and twenty workstations where is the best Place to install an Anti-virus Program

The best solution is to install anti-virus on all the computer in the network this will protect each device from the other in case some malicious user tries to insert a virus into the serves or legitimate users.

Define static IP and Dynamic IP Discuss the difference between IPV4 and IPV6 - IPV4 and IPV6 are internet protocall version 4 and Internet protocal version 6. IP version 6 is the new version of internet protocal which is way better than IP version 4 term of complexity and efficiency
1. IPV4 was the first version of IP. It was deployed for Production in the APPANET in 1983. Tody it is most widely used IP version it is used to identify devices

ASHOKA
Date:
Page No.

on a network using an addressing system
The IPV4 use a 32-bit address scheme allowing to store 4.3K address which is more than 4 billion address Till date, it is considered the primary internet Protocal and carries all of Internet traffic
2. IPV6 - is the most recent version of the Protocal Internet engineer Task for the Protocal. Inter..invitaed is in early 1994 the design and development of that suite is now called IPV6

This is new IP address version is being deployed to fulfill the need for more internet address. It was aimed to resolve issues which are associated with IPV4. With 128 bit address space it allows 340 unique address space. IPV6 also called internet Protocal next generation

a Discuss TCP/IP Model in detail?
TCP/IP Model help you to determine how a specific computer should be connected to the internet and how data should betransmitted between them. It helps you to create a virtual network are connected together. The Purpose To TCP/IP Model is to allow communication over large distance TCP/IP Stands for Transmission control Protocal/ Internet Protocal TCP/IP Protocal stak is specifically designed as a model to offer highly reliable and end-to-end byte stream over an unreliable internetwork

ASHOKA
Date:
Page No.

The fuctionality of the TCP/IP model is divided into four layers. and includes sepecific protocols.
TCP/IP is a layered serdese ar chitectare according to a specific function to perform.
All these four TCP/IP layers work collaboratively to transmit the data form one layer to another

1 Application Layer.
2 Transport Layer
3 Internet Layer
4 Network Layer

10 What is web Browser ? Give some example of browsers
A web browser, or browser for short, is a computer software application that enables a person to locate, retrieve and display content such as web pages, images, video as well as other files on the world wide web.
Browser, work to every web page, image. and video on the web has its own unique uniform Resource Locator (URL), allowing the browser to identify the resource

1 Google chrome :- Chrome, created by internet giant Google is the most popular browser in the USA perceived by its computer are smart phone users as fast, secure and reliable there are also many options for customization in the shape of useful expension and apps that can be downloaded for free form the Chrome Store.

2 Apple Safari => Safari is the default on apple computer and phones, as well as other Apple devices. it's generally considered to be an efficent browser, its slick design being in keeping with the ethor of Apple.

ASHOKA
Date:
Page No.

originally developed for Macs, safari has come to be a significant force in the mobiles market, due to the domination of iPhone and iPads unlike some of the other browsers listed safari is exclusive to Apple

3 Microsoft Internet => Explore and edge Although it has been discontinued, internet explorer is worthy of a Internet Emention as it was the go-to browser in the early days of the internet revolution with usage share rising to 95% in 2003, However, its relatively slow start-up speed meant that many user truend to chrome and firefox in the years that followed. In 2015, Microsoft announced that Microsoft Edge would replace internet explorer as the default browser on windows 10, making internet explozer

4 Mozilla Firefox - unlike, chorme, safari Internet explozer and Microsoft Edge firefox is an open-source browser created by community members of the Mozilla foundation it is perhaps the most customizable of the main browser with many add-ons and extensions to choose from in late 2003, it had a U.S.A

5 opera => Another web browser worthy of mention is opera, which is designed for Microsoft windows Android IOS, mac c.o.s, and Linux operesting system it has some interesting feature and is generally consided to be a reliable option by many user. many of its earlier feature have gone on to be incroporated into rival browsere. T-I also has a distinct user interface. At the time

ASHOKA
Date:
Page No.

of writing. Opera has a usage of just 2.28% but remains influential, albeit from the fringes.

Q11 What is a search engine? Give Example

A search engine is software accessed on the INTERNET that searches a DATABASE of information according to the user's QUERY, the engine provides a list of results that best match what the user is trying to find. Today there are many different each with its own abilities and features. The first search engine ever developed is considered ARCHIE, which was used to search for FTP files and the first text-based search engine is considered VERONICA, currently the most popular and well-known search engine is Google. Other popular search engines included AOL.ASK.COM, BAIDU, BING, DUCK DUCKGO, and YAHOO

Google => Google search Engine is the best search engine in the world and it is also one of most popular products form Google. Almost 90 Percent of the search Engine market has been acquired by Google. The tech giants is always evolving and looking to improve the search engine algorithm to provide best result to the end user. Although Google appears to be the biggest search engine, as of 2015 Youtube is more more popular than Google on-desktop computers.

ASHOKA
Date:
Page No.

2 Bing Bing is microsoft's answer to google and it was launched in 2009. Bing is the default search engine in microsoft web brower. At Bing they are always striving to make it a better search engine but it's got a long way to go give google competition. microsoft serch engine Provides different service including image, web and video search along with maps. Bing introduced Place. (Google equivalent is Google my Business). this is a great platform for busines to submit their details to optimize their search result

3 Yahoo ⇒ Yahoo Bing compete more with each than other than with google. A recent report on net market share. com. tells us that Yahoo have a marked share of 1.68 percent. Although a leader as a free email Provider this is declining significantly though with their recent announcement that user Detail and Passwords who hacked last years.

4 Baidu ⇒ Baidu is the most used search engine in china and was fouded in Jan, 2000. by Chimes Entrepreneur, Exicxu. This web search is made to deliver results for whe site audio files and image it Provides some other sevices including maps, news cloud storage and much more.

Q12 What is the internet and WWW? what is the uses internet in our daily life?

The internet is the wider network that allows computer networks around the world run by compains, goverment universities and other organisations to talk to one another

ASHOKA
Date:
Page No.

WWW = The world wide web, commonly known as the web, is an information system where documents and other web resource are identified by Uniform Resource Identifiers (URLs, such as http://example.com/) which may be interlinked by hypertext and accessible over the internet

The internet innovated our daily life positive use of the internet makes our lives easy and simple the internet provides us useful data, information and knowledge for personal, social and economic development and it is up to us to utilize our time on the world wide web in a productive manner

1 online booking
2 constructive communication
3 uses of the internet in effective education
4 uses of the internet in research.
5 online banking
6 Job searching

13 What is an internet service Provider? Give some example of ISP in India

Internet service provider - is an organization that provides services for accessing using or participating in the internet Internet service providers can be organized in various forms such as commerical, community-owned non-profit or otherwize Privately owned

Give some example ISP

1 AIRTEL
2 RELIANCE
3 JIO
4 BSNL

ASHOKA
Date:
Page No.

Q14 Discuss the difference between Mac adress IP address and Port address?

Mac Address stands for Media Access Control Address	IP Address stand for Internet Protocol Address
Mac address is a six byte hexadecimal address	IP Address is either four byte (IPV4) or six byte (IPV6) address
A device attached with Mac address can retrieve by ARP Protocol	A device attached with IP Address can retrieve by RARP Protocal
NIC card's.	
Manufacturer Provides the Mac address	Internet service Provider address IP Address
MAC Address is used to ensure the Physical address of computer	IP Address is the logical address of the computer

Q15 How do we view my internet browser's history?

In a microsoft edge browser. window, open the history menu the Keyboard shortcut Ctrl+H. You can also access this menu with the following steps:

1. First of all - on Your computer - open Chrome
2. Then - At the Top Right click more
3. Click History

This menu allows you to view the Page You've visited in chronological order