



District Public School & College, Kasur
Phone # 049 – 9250165

COMPUTER EDUCATION NOTES

Class: 8th

Prepared by
Waqar Ali
0321-4619047

Reviewed by
Imran Maqbool
0322-7582032

Computer Education Unit – 1 Notes 1st Term – 2020

Network & Its Components

Question 1: Explain different types of Physical Transmission Media.

The common types of physical transmission media are:

- Twisted Pair Cable
- Coaxial Cable
- Fiber Optic Cable

1. Twisted Pair Cable:

It consists of 2 separately insulated conductor wires wound about each other. Generally, several such pairs are bundled together in a protective cover. They are the most widely used Transmission Media. Twisted Pair is of two types:

Unshielded Twisted Pair (UTP): This type of cable has the ability to block interference and does not depend on a physical shield for this purpose. It is used for telephonic applications.

Shielded Twisted Pair (STP): This type of cable consists of a special jacket to block external interference. It is used in fast-data-rate Ethernet and in voice and data channels of telephone lines.

2. Coaxial Cable:

Coaxial cable, often referred to as coax (pronounced KO-ax), consists of a single copper wire surrounded by at least three layers: (1) an insulating material, (2) a woven or braided metal, and (3) a plastic outer coating.

3. Fiber-optic Cable:

Cable television (CATV) network wiring often uses coaxial cable because it can be cabled over longer distances than twisted-pair cable. This type of cable is consisted of glass fibers in the layers of glass cladding and a protective outer jacket. It is able to carry voice, video and data transmissions for a long distance. Because of its capacity and reliability, this type of transmission medium is popular high-speed long-distance transmission.

Question 2: Explain different types of Computer Networks.

What is a computer network?

A computer network is a group of two or more computers connected with each other for sharing resources and information.

Types of computer network:

A computer network can be categorized based on geographical location and characteristic. Based on geographical location, computer networks are outlined below.

1-LAN (Local Area Network)

A LAN is a computer network which spans over a small geographical area such as home, building, office, etc. In LAN, computers are placed relatively close or computers are located within small distance.

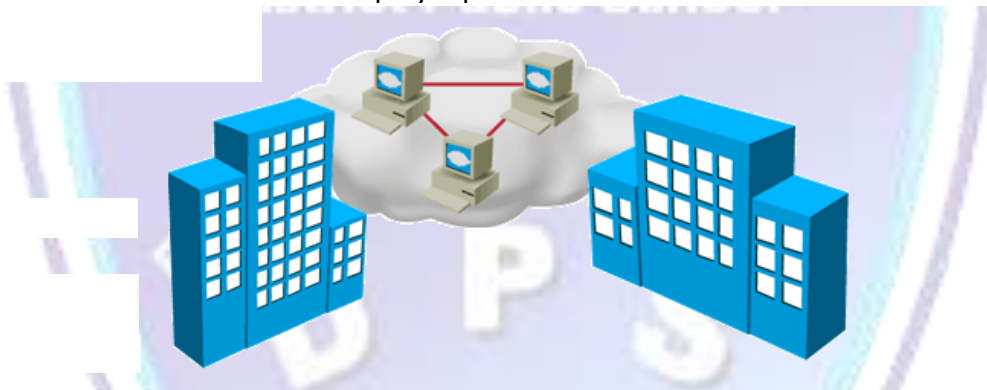
Prepared & Reviewed by

Department of Computer Science & Information Technology – DPS & College, Kasur



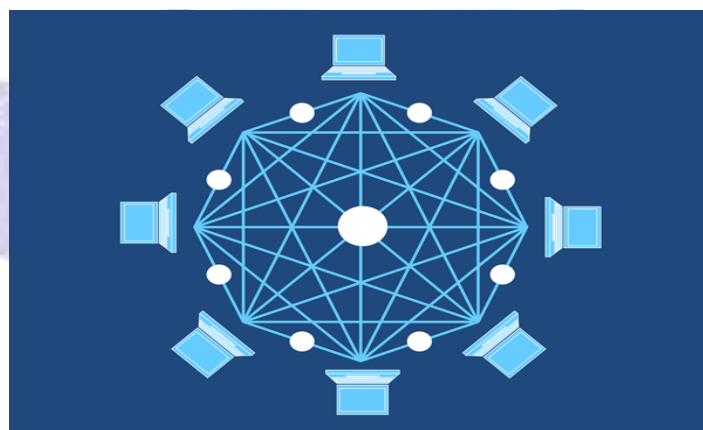
2-MAN (Metropolitan area network):

A MAN is a computer network which connects two or more LAN networks within same city. When due to distance connecting two LANs is not possible, MAN network is used. It is larger than LAN but smaller than WAN. It deploys special devices and cables to connect the LANs.



3-WAN (Wide Area Network):

WAN is a computer network which spans over a large geographical area such as state, region, country etc. WANs are typically used to connect two or more LANs or MANs which are located relatively very far from each other. To provide connectivity, this network uses special devices, cables and technologies.



Question 3: Describe GPS (Global Positioning System) and Bluetooth.

Global Positioning System (GPS): Global Positioning System is a satellite navigation system used to determine the ground position of an object. GPS technology was first used by United States Military in 1960s and expanded into civilian use over the next few decades. Today, GPS receivers are included in many commercial products, such as automobiles, smartphones, exercise watches etc.

Bluetooth: Bluetooth is a wireless technology standard for exchanging data over short distances using short-wavelength UHF (Ultra High Frequency) radio waves in the ISM (Industrial, Scientific and Medical) band from 2.400 to 2.485 GHz from fixed and mobile devices, and building personal area networks.

Question 4: Discuss different components of computer network?

The basic components of computer network are:

Sending Device: The device which is used to send messages, data or information to other devices connected to a network is called sending device. In a computer network, a sending device is usually a computer.

Receiving Device: The device which is used to receive messages, data or information from other devices connected to a network is called receiving device. In a computer network, a receiving device is usually a computer.

Communication Devices: Communication devices are used for communication between the computer and other devices. Modem is a popular communication device which is used for Internet communication.

Transmission Medium: Transmission medium is the channel or path through which the data or information is transferred from one place to another in a computer network. Transmission medium could be wired or wireless.

Question 4: What are communication devices? Explain any two of them.

Most commonly used communication devices are:

- **Network interface card**
- **Modem**

Network interface card:

NIC is short for network interface card. It's network adapter hardware in the form of an add-in card that fits in an expansion slot on a computer's motherboard. Most computers have them built-in (in which case they're just a part of the circuit board) but you can also add your own NIC to expand the functionality of the system. The NIC is what provides the hardware interface between a computer and a network.

Modem:

A modem is a device or program that enables a computer to transmit data over, for example, telephone or cable lines. Information stored in computer is digitally, whereas information transmitted over telephone lines in the form of analog waves. A modem converts analog signal into digital and digital into analog signals.

Computer Education Unit – 2 Notes 1st Term – 2020

Computer Security & Threats

Question 1: List some effects / indicators of security threats.

Some common indicators of computer security threats are:

- The computer runs slower than usual.
- The computer locks up or stops responding.
- The computer suddenly restarts on its own.
- Frequently used programs become slow to load and operate.
- Applications and disk drives are inaccessible.
- Unusual error messages appear.
- Unexpected icons appear on the desktop.
- Antivirus software is disabled or does not run.

Question 2: Differentiate between computer virus and a worm.

Virus	Worm
A computer virus is a piece of code which is capable of copying itself and typically has a detrimental effect, such as corrupting the system or destroying data.	A computer worm is a standalone malware computer program that replicates itself in order to spread to other computers. Often, it uses a computer network to spread itself, relying on security failures on the target computer to access it.

Question 3: How computer viruses and worms spread through e-mail attachments?

An e-mail virus is a computer code sent as an e-mail attachment. These types of viruses require the user to double-click on the attachment containing viruses. This causes the malicious code to mail itself to other people from that computer. The best defense against e-mail viruses is to never open an unknown e-mail.

Question 4: Who is a computer hacker? What can hackers do?

Answer: Computer hackers are unauthorized user who breaks into computer systems in order to steal, change or destroy information, often by installing dangerous malware without your knowledge or consent. Their clever tactics and detailed technical knowledge help them access the information you really don't want them to have.

Question 5: How adware affects the working of a computer?

Adware are the advertisements that appear in pop-ups or banners on computer screens. Clicks on the ads produce a monetary payoff for the software producers. Unlike malware or spyware, adware many times is loaded onto the computer with the user's permission.

Question 6: Name different types of viruses.

Top ten worst types of computer viruses are:

- Browser Hijacker
- File Infector
- Macro Virus
- Polymorphic Virus
- Multipartite Virus
- Direct Action Virus
- Boot Sector Virus
- Web Scripting Virus
- Memory Resident Virus

Question 7: What is an antivirus?

Antivirus software, or anti-virus software, also known as anti-malware, is a computer program used to prevent, detect, and remove malware. Antivirus software was originally developed to detect and remove computer viruses, hence the name.



Computer Education Unit – 2 Notes 1st Term – 2020

Problem Solving

Question – 4: Give brief answers to the following questions.

i. What are the key features of a problem statement?

Key features of a problem statement are as follows:

- Clarity and precision
- Identification of what would be studied
- Identification of variables
- Identification of key concepts and terms

ii. What is a flowchart?

A flowchart is a graphical representation of an algorithm to solve some specific problem. It can give a step by step solution to a given problem.

iii. What are the uses of flowchart?

A flowchart can be used in computer system design, programming, engineering and science etc.

iv. What are the advantages of flowchart?

Advantages of flowchart are as follows:

- It represents all the processes graphically.
- It shows the flow processes in a sequential manner.
- It helps in understanding the logic of problem-solving process.

v. What is the use of decision symbol?

Diamond symbol is used as decision symbol in a flowchart. It is used to show decision process in a flowchart.

Question – 5: Give detailed answers to the following questions.

i. Explain the elements of a problem statement.

A problem statement has three elements which are as follows:

- **What is given – Input:** input is that we give as raw material to solve the problem. It is also called data or known facts.
- **The processing requirements:** This involves performing actions or operations on input data to achieve the desired goals and find the solution to the problem.
- **What is required – Output:** Output is the result which is obtained by processing the input data. It is called solution. It is the change in the situation or goal one is aiming for problem solving.



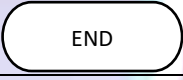

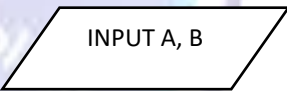
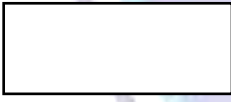
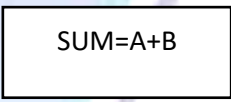
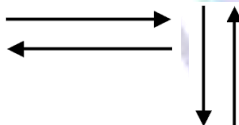
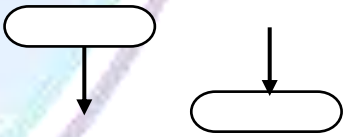
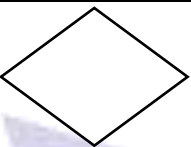
ii. What is flowcharting? How it helps in problem solving?

Flowcharting is a process of graphical representation for solving a problem. It is a tool for analyzing processes. It can be used in computer systems design, programming, engineering and science etc.

Flowchart helps in finding the solution of a problem and facilitate in showing the input, process and output of the problem.

iii. Explain different symbols used to draw flowcharts with examples.

Flowcharts use standardized set of symbols. Symbols of flowcharts are as follows:

Symbol	Description	Example
	Start/End symbol	 
	Input/output Symbol	
	Processing symbol	
	Flow Lines	
	Decision symbol	