COMPUTER NETWORK
III BCA
(16SCCCA8)

UNIT-I (2MARKS)

1. What is data communication?

   Data communication refers to the transmission of the digital data between two or more computers the physical connection between networked computing devices is established using either cable media or wireless media. The best-known computer network is the Internet.

2. What are the types of network?

   The Network allows computers to connect and communicate with different computers via any medium. LAN, MAN and WAN are the three major types of the network designed to operate over the area they cover.

   There are some similarities and dissimilarities between them. One of the major differences is the geographical area they cover, i.e. LAN covers the smallest area; MAN covers an area larger than LAN and WAN comprises the largest of all.

3. Expand TCP&IP.

   TCP-Transmission Control Protocol
   IP- Internet Protocol

4. What is Spread Spectrum?

   Spread spectrum is a technique used for transmitting radio or telecommunications signals. The term refers to the practice of spreading the transmitted signal to occupy the frequency spectrum available for transmission.

   The advantages of spectrum spreading include noise reduction, security and resistance to jamming and interception.

5. What is switching?

   Switched communication networks are those in which data transferred from source to destination is routed between various intermediate nodes. Switching is the technique by which nodes control or switch data to transmit it between specific points on a network. There are 3 common switching techniques:

   Circuit Switching
   Packet Switching
   Message Switching

UNIT-II (2 MARKS)

1. What is the Data Link Layers?

   The data link layer is the protocol layer in a program that handles the moving of data into and out of a physical link in a network. The data link layer is Layer 2 in the Open Systems Interconnection (OSI) architecture model for a set of telecommunication protocols. Data bits are encoded, decoded and organized in the data link layer, before they are transported as frames between two adjacent nodes on the same LAN or WAN. The data link layer also determines how devices recover from collisions that may occur when nodes attempt to send frames at the same time.

2. Define Error Correction.

   Error Correction codes are used to detect and correct the errors when data is transmitted from the sender to the receiver.

   Error Correction can be handled in two ways:

   - Backward error correction: Once the error is discovered, the receiver requests the sender to re transmit the entire data unit.
   - Forward error correction: In this case, the receiver uses the error-correcting code which automatically corrects the errors.

3. Define Bluetooth.

   Bluetooth is an open wireless technology standard for transmitting fixed and mobile electronic device data over short distances. Bluetooth was introduced in 1994 as a wireless substitute for RS-232 cables.

   Bluetooth communicates with a variety of electronic devices and creates personal networks operating within the unlicensed 2.4 GHz band. Operating range is based on device class. A variety of digital devices use Bluetooth, including MP3 players, mobile and peripheral devices and personal computers.

4. What is Cyclic Codes?

   In coding theory, a cyclic code is a block code, where the circular shifts of each code word gives another word that belongs to the code. They are error-correcting codes that have algebraic properties that are convenient for efficient error detection and correction.

   For example, if 1011000 is a code word and we cyclically left-shift, then 0110001 is also a code word.

5. What is a satellite network?

   A satellite is an object that revolves around another object. For example, earth is a satellite of The Sun, and moon is a satellite of earth.

   A communication satellite is a microwave repeater station in a space that is used for telecommunication, radio and television signals. A communication satellite processes the data coming from one earth station and it converts the data into another form and send it to the second earth station.

UNIT-III (2 MARKS)

1. What is Network layer?

   - The Network Layer is the third layer of the OSI model.
   - It handles the service requests from the transport layer and further forwards the service request to the data link layer.
   - The network layer translates the logical addresses into physical addresses
   - It determines the route from the source to the destination and also manages the traffic problems such as switching, routing and controls the congestion of data packets.
   - The main role of the network layer is to move the packets from sending host to the receiving host.

2. What is IPV4 Addressing?

   The IPv4 address is a 32-bit number that uniquely identifies a network interface on a system, as explained in How IP Addresses Apply to Network Interfaces. An IPv4 address is written in decimal digits, divided into four 8-bit fields that are separated by periods. Each 8-bit field represents a byte of the IPv4 address.

3. What is Internet Protocol?

   The Internet Protocol (IP) is the method or protocol by which data is sent from one computer to another on the Internet. Each computer (known as a host) on the Internet has at least one IP address that uniquely identifies it from all other computers on the Internet.

4. What are types of Protocol?

   - Transmission Control Protocol (TCP)
   - Internet Protocol (IP)
   - User Data gram Protocol (UDP)
   - Post office Protocol (POP)
   - Simple mail transport Protocol (SMTP)
   - File Transfer Protocol (FTP)
   - Hyper Text Transfer Protocol (HTTP)
   - Hyper Text Transfer Protocol Secure (HTTPS)
   - Telnet
   - Gopher

5. What is IP Addressing?

   An Internet Protocol address (IP address) is a numerical label assigned to each device connected to a computer network that uses the Internet Protocol for communication. An IP address serves two main functions: host or network interface identification and location addressing.

UNIT-IV (2MARKS)

1. What is Transport Layer?

    - The transport layer is a conceptual division of methods in the layered architecture of protocols in the network stack in the Internet protocol suite and the OSI model. The protocols of this layer provide host-to-host communication services for applications.

    - The main role of the transport layer is to provide the communication services directly to the application processes running on different hosts.

2. What is Error Control?

    Network is responsible for transmission of data from one device to another device. The end to end transfer of data from a transmitting application to a receiving application involves many steps, each subject to error. With the error control process, we can be confident that the transmitted and received data are identical. Data can be corrupted during transmission. For reliable communication, error must be detected and corrected.

    - Single Bit Error
    - Burst Error

3. Define Data gram Protocol.

    The User Data gram Protocol (UDP) is simplest Transport Layer communication protocol available of the TCP/IP protocol suite. It involves minimum amount of communication mechanism. UDP is said to be an unreliable transport protocol but it uses IP services which provides best effort delivery mechanism.

    In UDP, the receiver does not generate an acknowledgement of packet received and in turn, the sender does not wait for any acknowledgement of packet sent. This shortcoming makes this protocol unreliable as well as easier on processing.

4. What is Flow Control?

    Flow Control is one important design issue for the Data Link Layer that controls the flow of data between sender and receiver.

    FLOW CONTROL is introduced in Data Link Layer. It also works on several higher layers. The main concept of Flow Control is to introduce EFFICIENCY in Computer Networks.

- Feedback based Flow Control
- Rate based Flow Control

5. What is TCP Timers?

TCP uses several timers to ensure that excessive delays are not encountered during communications. Several of these timers are elegant, handling problems that are not immediately obvious at first analysis. Each of the timers used by TCP is examined in the following sections, which reveal its role in ensuring data is properly sent from one connection to another.

- Re transmission Timer
- Persistent Timer
- Keep Alive Timer
- Time Wait Timer

UNIT-V (2MARKS)

1. What is the Application Layers?

The application layer in the OSI model is the closest layer to the end user which means that the application layer and end user can interact directly with the software application. The application layer programs are based on client and servers.

2. What is the Client?

A client is a computer that connects to and uses the resources of a remote computer, or server. Many corporate networks comprise a client computer for each employee, each of which connects to the corporate server. The server provides resources like files, information, Internet and intranet access, and external processing power. In the case of processing, any work done on the server is referred to as "server-side" work. Any work done on the local client is similarly called "client-side."

3. Define WWW.

The World Wide Web (WWW) is a collection of documents and other web resources which are identified by URLs, interlinked by hypertext links, and can be accessed and searched by browsers via the Internet.

World Wide Web is also called the Web and it was invented by Tim Berners-Lee in 1989.

Website is a collection of web pages belonging to a particular organization.

The pages can be retrieved and viewed by using browser.

4. Define DNS.

Domain Name Servers (DNS) are the Internet's equivalent of a phone book. They maintain a directory of domain names and translate them to Internet Protocol (IP) addresses. This is necessary because, although domain names are easy for people to remember, computers or machines, access websites based on IP addresses.

5. What is Email?

Email is information stored on a computer that is exchanged between two users over telecommunications. More plainly, e-mail is a message that may contain text, files, images, or other attachments sent through a network to a specified individual or group of individuals.