

**Unit 2: Information Networks****Q1: What is a computer Network?**

Ans: A computer network is a set of two or more computers connected together in order to share information and other resources. A computer network is also called an information network.

**Q2: Write some uses of a computer network.**

Ans: The main benefits or uses of a computer network are:

1. It allows multiple users to access and share programs and information at the same time.
2. It allows multiple users to share peripheral devices, such as printers and hard disks.
3. It allows sending e-mails along with files.
4. It allows the users to communicate via teleconferencing and videos-conferencing.

**Q3: What is the difference between a server computer and terminal?**

Ans: A computer in the network that controls the overall functioning of a network is called a server computer. It is also known as central computer. The devices other than server computer within the network are called terminals. Terminals are also known as nodes. A node may be a personal computer, printer, or monitor etc.

**Q4: What is Workgroup?**

Ans: A group of persons working together on a project and sharing information through computer networks is called workgroups.

**Q5: What are clients?**

Ans: All computers (other than server computer) connected in the network are called clients. The clients send requests to the server. Server receives the requests from clients and takes proper actions on these requests.

**Q6: What is peer-to-peer network model?**

Ans: In peer-to-peer arrangement, all nodes for computers) on the network have equal status. No one has control over others. It means that there is no central computer to control other computers on the network. Each computer stores files on its own storage devices and has its own peripheral devices.

**Q7: Define dedicated server.**

Ans: A dedicated server is used to perform a specific task. For example, Print Server is used to manage printers and print job.

**Q8: What is hybrid model?**

Ans: It is a combination of client/server model and peer-to-peer model. Many networks use a mixture of both network models. This model can provide the advantages of both models.

**Q9: What is Client/Server Model?**

Ans: In this network model, one or more computers work as servers and other computers work as clients. In mesh topology, each node is directly connected to every other node on the network. This type of network involves the concept of routes. Mesh topology is rarely used in LAN. Some WANs like the Internet use mesh topology.

**Q10: What is LAN?**

Ans: LAN stands for Local Area Network. It is a type of computer network that covers a small area. The network of computers in computer laboratory of a college and network of computers in an office building are examples of LANs.

**Q11: List some components of LAN.**

Ans: The list of some components of LAN as follows:

1. Communication Media
2. Network-Interface Card (NIC)
3. Gateway
4. Router
5. Bridge

**Q12: What is the use of Network-Interface Card?**

Ans: A network interface card (NIC) is used to connect a computer to other computers in the local area network. It is a circuit board that is installed inside the computer's internal expansion slots. The NIC has a socket where the network cable is connected.

**Q13: What is Bridge?**

Ans: A bridge is an electronic device. It is used to connect two similar networks and to control the data flow between them. When a bridge receives a packet of data; it looks at the address where the packet of data is to be sent. Each packet of data contains the block of actual data and the address of computer of the computer network where data is to be sent.

**Q14: What is Gateway?**

Ans: A gateway is also an electronic device or system (collection of hardware and software resources). It is used to connect two different types of networks. It translates data from one format to the other.

**Q15: What is a Router?**

Ans: A router is also an electronic device. It is used to connect two or more different or similar networks. It stores the addressing information (routing information) of each computer on the connected networks (i.e. each computer on each connected LAN or WAN). Router uses the routing information (addresses of all computers of all connected networks) to transfer data along the most efficient path.

**Q16: What is WAN?**

Ans: It stands for Wide Area Network". The word wide" means large. WAN is that covers a large area. The computers (or terminals) connected to this type cities or countries.

**Q17: What is host computer?**

Ans: The large computer to which the terminal (or PC) is attached is called host computer. The terminal can upload or download data files to and from the host computer.

**Q18: What is MAN?**

Ans: A metropolitan area network (MAN) is a communication network system. It covers area of a single city. Usually, MAN connects more than one LANs in a city or town. It covers a smaller geographical area than a WAN. In this type of network, fiber optic cables are used as communication media. So it is very high speed network. Mobile phones (cellular) systems often use MAN.

**Q19: What is network protocol?**

Ans: All machine based communications must follow certain set of rules for exchanging data between nodes connected to a network. A set of rules for exchanging data between nodes connected to a network is called network protocol. These rules are implemented with the help of network software.

**Q20: What is Ethernet?**

Ans: Ethernet is the most popular and commonly used LAN protocol. It uses a high speed network cable and Bus topology. This protocol is very simple than other protocols.

**Q21: Define the term token used in networking.**

Ans: A token is special electronic signal. It consists of a series bits. It is like a ticket. Only one token is available on the network. When a node on the network wants to transmit data, it first gets the token, and then it can transmit data. When the node has sent its message, it releases the token back to the network.

**Q22: What is the use of Token ring?**

Ans: Token ring is another widely used LAN protocol. It is used in local area network using ring topology. A computer in the network (using ring topology) must get a token to transfer data to other computer on the network.

**Q23: What is token passing?**

Ans: When a node on the network wants to transmit data, it first gets the token, and then it can transmit data. When the node has sent message, it releases the token back to the network. This method of controlling access to the shared network cable is called token passing.

**Q24: Write the names of different LAN protocols.**

Ans: The most common and popular LAN protocols are:

1. Ethemet
2. Token Ring
3. ARC net

**Q25: What is ARC net?**

Ans: ARC net stands for Attached Resource Computer network. It is a LAN protocol. It is also a topology. It uses twisted pair wire or coaxial cable, and the star topology with hub attached to the network.

**Q26: What is OSI Model?**

Ans: OSI stands for Open System Interconnection. It is used for designing network architecture. It was designed by the International Standard Organization (ISO). It provides a logical framework for data communication through computer networks. This model provides the reference but not the reality. Therefore, OSI model is also known as OSI Reference Model.

**Q27: Write the names of seven layers of OSI Model.**

Ans: The seven layers of OSI models are:

1. Physical
2. Data Link
3. Network
4. Transport
5. Session
6. Presentation
7. Application

**Q28: What is the purpose of Application Layer of OSI model?**

Ans: The Application layer is the topmost layer of OSI model. It provides services directly to the user applications, to access the network. It provides user interfaces and support for services such as email, remote file access and transfer, shared database management, and other types of distributed information services.

**Q29: What is the purpose of Presentation Layer of OSI model?**

Ans: This layer of OSI model performs data transformations to provide a common interface for user applications. It is concerned with how data is converted and formatted for data transfer. Examples of format conversions include ASCII text for documents and .gif and .jpg for images.

**Q30: What is the purpose of Session Layer of OSI model?**

Ans: This layer of OSI model establishes maintains and manages connections between communicating systems or devices, so that they can talk to each other. These connections are called sessions. A session is actually an exchange of messages among computers.

**Q31: What is the purpose of Transport Layer of OSI model?**

Ans: This layer of OSI model controls the flow of data. It ensures that messages are delivered error free. It breaks large message received from the session layer into segments packets to be sent to the destination computer. At the destination computer, it reassembles the data segments/packets and presents the data to the session layer. Transport layer also sends an acknowledgement of receiving of data to the sender.

**Q32: What is the purpose of network Layer of OSI model?**

Ans: This layer of OSI model manages the delivery of data packet from source to destination. It determines logical path between the sender and the receiver. There may be many networks between two computers.

**Q33: What is the purpose of Data link Layer of OSI model?**

Ans: This layer of OSI model is responsible for carrying a packet of data from one computer (or router) to the next. It is also responsible for the reliability of the physical link established at physical layer. This layer provides the error free transfer of data from one computer to another. It checks whether the data has arrived properly and safely at the destination. Data link layer must decide the following:

1. Framing
2. Flow control
3. Error control
4. Access control

**Q34: What is the purpose of Physical Layer of OSI model?**

Ans: The physical layer of OSI model is the bottom-most. This layer controls and coordinates the transmission of data in the form of bit stream over a physical medium such as coaxial cable, optic fiber cable etc. Physical layer must decide the following:

1. Characteristics of Media
2. Representation of bits
3. Data Rate
4. Transmission mode

**Q35: What is tree topology?**

Ans: A tree topology combines the characteristics of bus and star topologies. It consists of different groups of computers attached in star topology. The groups are then connected to a bus backbone cable.

**Q36: What is the difference between intranet and extranet?**

Ans: Intranet contains the information of one organization while extranet may have the information of two or more organizations. Similarly, intranet is used to provide information to the employees while extranet is used to share information with other organizations.

**Q37: Define CSMA/CR.**

Ans: It allows multiple devices to talk at the same time. A protocol is used to determine the priority of a device.

**Q38: How does CSMA/CD work?**

Ans: It is a local area access method. It resolves contention between two or more stations by collision detection. If two stations transmit data at same time, both stop and generate a signal that collision has occurred. Each station waits for specified time and then retransmits.

**Q39: Define CSMA/CS?**

Ans: In this method, a node listens to the bus for a specified time before transmitting the data. It waits until the node has completed the transmission.

**Q40: Define ISDN?**

Ans: It stands for Integrated Services Digital Network. It is a set of standards for digital transmission of data over standard copper telephone lines. One telephone line can carry three or more signals at one time using the same line. ISDN requires ISDN modem at both sides.

**Q41: Define DSL?**

Ans: It stands for Digital Subscriber Line. It provides high speed transmission over existing telephone lines. The existing telephone lines are analog. That is why, a DSL modem is required to connect to DSL.. DSL is easier to install than ISDN. It is also faster than ISDN.