

**MARIA COLLEGE OF ENGINEERING AND TECHNOLOGY,
ATTOOR**

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING
COMPUTER NETWORKS

2 MARKS QUESTIONS & ANSWERS

**PART A
UNIT I**

1. Define and compare LAN, WAN.

LAN	WAN
1. Scope of LAN is restricted to a small/ single building	1. scope of WAN spans over large geographical area country/Continent
2. LAN is owned by same organization	2. a part of n/w asserts are owned or not owned
3. Data rate of LAN 10-100mbps	3. Data rate of WAN is Gigabyte.

2. What is circuit switching?

In a circuit-switched network, a dedicated communication path is established between two stations through the nodes of the network. That path is a connected sequence of physical links between nodes.

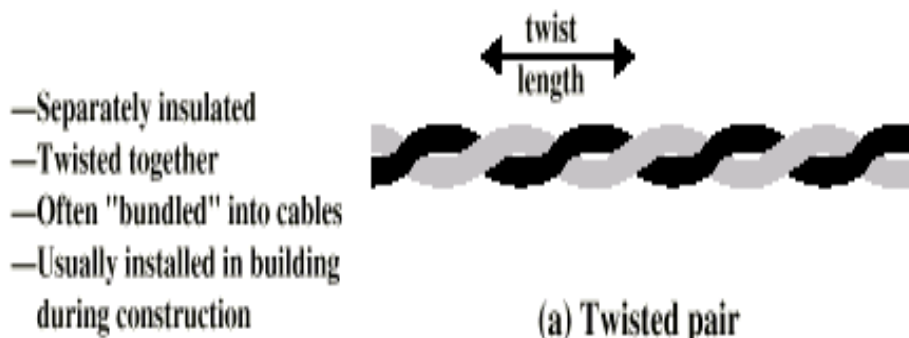
3. What is packet switching?

In a packet-switched network, it's not necessary to dedicate transmission capacity along a path through the network. Rather, data are sent out in a sequence of small chunks, called packets. Packet switching is mainly used in terminal-to-computer and computer-to-computer communications.

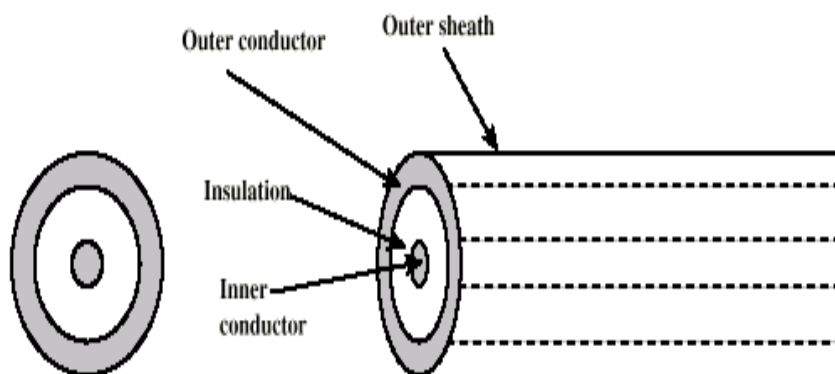
4. Define Full Duplex and simplex transmission system.

With Full duplex transmission, two stations can simultaneously send and receive data from each other. This mode is known as two-way simultaneous. The signals are transmitted in only one direction. One is the sender and another is the receiver.

5. Draw the diagram of twisted pair cable?

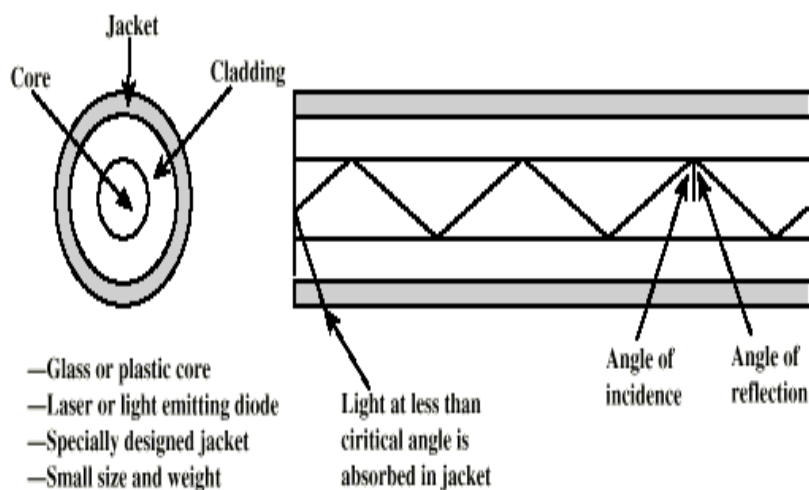


6. Draw the diagram of coaxial cable?



- Outer conductor is braided shield
- Inner conductor is solid metal
- Separated by insulating material
- Covered by padding

7. Draw the diagram of optical fiber?



- Glass or plastic core
- Laser or light emitting diode
- Specially designed jacket
- Small size and weight

8. List the various frequencies of wireless transmission.

Terrestrial Microwave (2GHz to 40GHz), Broadcast Radio (30MHz to 1GHz), Infrared (3×10^{11} to 2×10^{14})

9. What is meant by NRZI signal encoding?

NRZI (Nonreturn to Zero Inverted) is a differential encoding in which the signal is decoded by comparing the polarity of adjacent signal levels: 1 encoded by transition between levels and 0 encoded by a lack of transition.

10. Define Amplitude modulation.

Amplitude modulation has the property of translating the spectrum of the modulation $f(t)$ to the carrier frequency. The bandwidth of the signal remains unchanged. The fact

that AM simply shifts the signal spectrum is often used to convert the carrier frequency to a more suitable value without altering the modulation. This process is known variously as **mixing**, **up-conversion** or **down-conversion**.

11. Differentiate between lost frame and damaged frame?

Lost frame is the frame that fails to arrive at the other side. The damaged frame is a recognizable frame does arrive, but some of the bits are in error.

12. Why sliding window flow control is considered to be more efficient than stop and wait flow control.

In sliding window flow control, the transmission link is treated as a pipeline that may be filled with frames in transit. But with stop-and-wait flow control only one frame may be in the pipe at a time.

13. What do you mean by error control and Flow Control?

Error control refers to mechanism to detect and correct errors that occur in the transmission of frames. Flow control is a technique for assuring that a transmitting entity does not overwhelm a receiving entity with data.

14. Define piggybacking.

The technique of temporarily delaying outgoing acknowledgment so that they can be hooked onto the next outgoing data frame is widely known as piggybacking.

15. What is OSI? Define HDLC.

OSI is Open Systems Interconnection and is developed by the International Organization for Standardization (ISO). HDLC stands for High Level Data Link Control. It has three stations, two links, and three types of data transfer.

16. What are the key elements of a protocol?

Protocol is used for communications between entities in a system and must speak the same language. Protocol is the set of rules governing the exchange of data between 2 entities. It defines what is communicated, how it is communicated, when it is communicated

Key elements of Protocol:

Syntax – It refers to the structure or format of data meaning the order in which they are presented.

Semantics – It refers to the meaning of each section of bit. How to do interpretation.

Timing – When data should be sent and how fast they can be sent.

17. List the uses of a network access layer.

- Exchange of data between the computer and the network
- Sending computer provides address of destination
- May invoke levels of service
- Dependent on type of network used (LAN, packet switched etc.)

18. What are the uses of transport layer?

- Reliable data exchange
- Independent of network being used
- Independent of application

19.What is protocol data unit (PDU)?

At each layer, protocols are used to communicate and Control information is added to user data at each layer. Transport layer may fragment user data. Each fragment has a transport header added and header consists of

- Destination SAP
- Sequence number
- Error detection code

20. What are the uses of internet layer in TCP/IP?

- Systems may be attached to different networks
- Routing functions across multiple networks
- Implemented in end systems and routers

21.What is a Layered Network Architecture?

- A layer is created when a different level of abstraction occurs at protocol. Each layer should perform a well defined function.
- Function of each layer should be chosen using internationality standardized protocols. Boundaries between should be chosen to minimize information flow across the interfaces.
- A set of layers and protocol is called network architecture. A list of protocols used by a system is called protocol stack.

22.What is the need for layering?

- It reduces the design complexity.
- It decomposes the problem of building a network into more manageable components.
- It provides a modular design, if we want to add some new service, you may only need to modify the functionality at one layer, reusing the functions provided at all other layers

23.Compare OSI and Internet Protocol.

<u>OSI</u>	<u>TCP</u>
❖ It distinguishes between service,Interface,protocol	It does not distinguish between service, interface, protocol
❖ Protocols are well hidden	Protocols are not just hidden
❖ Dejure. Standard Fit Model then protocol	Defacto standard Fit protocol then model
❖ In transport layer only connection Oriented services are available	In Transport layer choice is for Connection oriented/connection less.
❖ It contains 7 layers	It contains 5 layers

24.How do layers of the internet model correlate to the layers of the OSI model.

OSI	TCP/IP
Physical Layer	Physical Layer
Data Link Layer	Network Access Layer
Network Layer	IP Layer
Transport Layer	TCP Layer
Session Layer	Application Layer

Presentation Layer	
Application Layer	

25.What is the use of data link layer in OSI?

Provides for reliable transfer of information across the physical link; sends block of data (frames) with necessary synchronization, error control, and flow control.

- **Frame synchronization:** Data is divided by data link layer as frames ,a manageable unit.
- **Flow Control:** Sending station does not overwhelm receiving station.
- **Error Control:** Any error in bits must be detected and corrected using some mechanism.
- **Addressing:** Two stations in a multi point that involved in transmission must be specified using physical address
- **Access Control:** When two or more devices are connected to the same link, Access control mechanism is needed to determine which device has control over the link at any given time.

26. Why is flow control and error control duplicated in different layers?

Like the data link layer, the transport layer is responsible for flow and error control . Flow control and error control at data link layer is node-to-node level. But at transport layer, flow control and error control is performed end-end rather than across a single link.

27.List the key ingredients of technology that determines nature of a LAN.

- Topology
- Transmission medium
- Medium access control technique.

28. What are the functions of physical layer of IEEE 802 reference model?

- Encoding/ decoding of signals
- Preamble generation/removal (for synchronization)
- Bit transmission/ reception.

29.List the common topologies available for LAN.

Star Topology, Ring Topology Bus Topology and Tree Topology.

30.What is a bus topology?

Bus topology uses a multipoint medium and all stations are attached through appropriate hardware interfacing known as a tap. A full duplex operation is used for transmission and reception of data in a bus.

31.What is tree topology?

Tree topology is generalization of bus topology. Transmission medium is a branching cable with no closed loops. It begins at a point known as headend, where one or more cables start, and each of these may have branches.

32. What is ring topology?

In the ring topology, the network consists of a set of repeaters joined by point-to-point links in a closed loop. The repeater is a device which receives data in one link and transmits them in other link.

33. What is star topology?

In star topology, each station is directly connected to a common central node. Central node is referred as star coupler which uses two point-to-point links, one for transmission in each direction.

34. What are the functions of presentation layer?

Translation
Encryption / Decryption
Authentication
Compression

35. What is ARQ? List the advantages of Star Topology?

Automatic Repeat Request is used to retransmit the information automatically when the packet is lost while transmit.

Advantages of Star Topology:

- scalable
- easy to identify the fault

36. What is peer to peer process.

Communication between peer to peer process, a protocol defines a communication service that it exports locally, along with a set of rules governing the messages that the protocol to implement this service.

37. What are the two types of error in flow control and error control.

- single bit error
- burst error

38. What is the difference between stop and wait and sliding window protocol.

In stop and wait protocol, we can sent one frame at a time where as in sliding window protocol multiple frames we can sent at a time.

UNIT- II

1. List the advantages of a centralized scheme.

- It may afford greater control over access for priorities, overrides, and guaranteed capacity.
- It enables the use of relatively simple access logic at each station.
- It avoids problems of distributed coordination among peer entities.

2. What is meant by Ethernet and MAC control?

Ethernet is a networking topology developed in 1970 which is governed by the IEEE 802.3 specification. **MAC control** field contains any protocol control information needed for the functioning of the MAC protocol. For example, a priority level could be indicated here.

3. What is CSMA/CD?

It is a protocol used to sense whether a medium is busy before transmission but it has the ability to check whether a transmission has collided with another.

4. List the rules for CSMA/CD.

1. If the medium is idle, transmit; otherwise go to step 2.
2. If the medium is busy, continue to listen until the channel is idle, and then transmit immediately.
3. If a collision detected during transmission, transmit a brief jamming signal to all station to indicate collision has occurred and then cease transmission.
4. After transmitting a jamming signal, wait for some time, then transmit again.

5. What is preamble?

A 7-octet pattern of alternating 0s and 1s is used by the receiver to establish bit synchronization is called as preamble.

6. When a transmitting station will insert a new token on the ring?

It will insert a new token when the station has completed transmission of its frame. The leading edge of the transmitted frame has returned to the station.

7. What is early token release (ETR)?

ETR allows a transmitting station to release a token as soon as it completes frame transmission, whether or not the frame header has returned to the station.

8. What is frame status (FS)?

It contains the error detected (E), address recognized (A), and frame copied (F) indicators. Each indicator is represented by a symbol, which is R for “reset” or “false” and S for “set” or “true”.

9. Give the applications of wireless LANs.

LAN extension, cross building interconnect, nomadic access, and advantages hoc networks.

10. What is a bridge? List the reason for using bridges in LAN.

Bridge is a hardware networking device used to connect two LANs. A bridge operates at data link layer of the OSI layer.

Reliability, performance, security, and geography are the reason for using bridges in LAN

11. What is No-transition?

A station of this type is either stationary or moves only within the direct communication range of the communicating stations of a single BSS (basic service set)

12. What are the functions of a bridge?

- The function of a bridge between two LANs A and B are:
- Reads all frames transmitted on A and accepts those addressed to stations on B
- Using medium access control protocol for B, retransmits the frames onto B
- Does the same for B-to-A traffic.

13. What is spanning tree routing?

The spanning tree approach is a mechanism in which bridges automatically develop a routing table and update that table in response to changing topology.

14. Compare FDDI with token ring 802.5.

FDDI	802.5
No priority and reservation bits	It has priority scheme by using reservation bits.
No need of converting a token to start of data frame by inverting token bits because of high data rate	It converts a token to data frame changing token frame.
A station that transmits data frames releases a new token as soon as it completes data.	A station that data transmissions after releasing back its own transmission, release the token.

15. Ethernet stipulates a minimum size of a frame. Why is it necessary?

To detect collision. To identify valid frame from garbage, valid full format should contain 64 bytes from destination address to checksum. So if the data portion is less than 46 bytes, pad field is used to fill out the frame to minimize size.

16. Give the format of Ethernet address.

Preamble	Dest addr	Src addr	Type	Body	CRC
64	48	48	16		32

17. What is meant by the contention period of Ethernet? How many lines are required to connect n – systems in Direct Mesh topology?

When several stations on an Ethernet have data to send, there are contention periods during which collisions happen and no data is successfully transmitted. n(n-1)/2 lines are required.

18. What does IEEE 10 Base 5 standard signify?

10 represents data rate 10 Mbps.
5 refers to segment length 5* 100 m that can run without repeaters
Base represents Base band communication

19. Define Repeater, Hub.

Repeaters and hubs are interconnecting devices.

Repeater: Repeaters extends the Ethernet segment and it repeats the signal. It does not amplifies the signal.

Hub: A Hub has several point to point segments coming out. It is a multi way repeater. It broadcasts any signal through all outgoing lines.

20. What is meant by Exponential back of algorithm?

After first collision, each station waits either 0 or 1 slot time before trying again. If 2 stations collide and each one picks same random number 0/1,. .After second collision, each one picks either 0,1,2 or 3 slot at random and waits. If collision occurs again , then next time the number of slots to wait is chosen at random from 0 to $[2^3 - 1]$. This algorithm is called binary exponential “back off algorithm”.

22. Define a switch and a bridge.

Switch: switches are hardware or software device capable of creating temporary connections between more devices which are not directly connected. It is a multi input/output port device. It transfers data coming from one input port to one or more output ports. This function is called as forwarding.

Bridge: Bridges are used to interconnect LANs. A bridge observes and forwards all frames that it receives.

23. Define Spanning Tree Algorithm.

Bridge connects n/w and removes loop in the path using spanning tree algorithm It constructs a spanning tree of edges between hosts that maintain connectivity of the graph with no loops. It is a dynamic algorithm. The algorithm works as follows

- Frame Forwarding
- Address Learning
- Loop Resolution

24. What are different types of bridge? What are the limitations of bridges?

- Simple Bridge connect 2 LAN
- Multi port Bridge connect more than 2 LANs
- Transparent Bridge it learns on its own about connected LANs.

limitations of bridges:

- Scalability
- Hetrogenity

25. Mention the functions of Bridges.

1. A bridge should have enough buffer space to store the frames until it is transmitted.
2. It should be able to distinguish addresses of host on different LAN.
3. It can contain information about other bridges.
4. It should follow congestion control mechanisms to overcome congestion.
5. It works at layer 1 and layer 2 level.

26. Name any two network connecting devices? Can a bridge replace repeater for interconnecting 2 segments of a n/w?

Repeater, Bridges.

Repeater repeats the signal to the actual strength so that they can travel and works at physical layer. Repeater operates on the physical layer level. Here collision probability is more.

Bridge is an network connecting device. It does forwarding & filtering frames using LAN destination address. Bridges are used to connect LAN or WAN and works at data link layer level. Collision Probability is more.

A bridge cannot replace repeater for interconnecting 2 segments of a network because functions of them are entirely different.

27. What are the advantages of switches instead of hub. Write the frame format for FDDI.

In switches, the sending information are directly transmitted to the concern receiver.

	8	8	48	48		32	8	24
Start of frame	Control	Dest addr	Src addr	Body	—	CRC	End of frame	Status

28. What is Token ring? What is the use of bit stuffing?

Set of nodes are connected together in a ring. Data flow always in a particular direction around the ring.

Bit stuffing is bit oriented protocol. It is used to detect the error during the transmission of the stream of bits.

**UNIT – III
PART A**

1. Differentiate Packet Switching and circuit Switching.

<i>Issue</i>	<i>Datagram subnet</i>	<i>Circuit Switching</i>
Circuit setup	Not Required	Required
Transmission path	No Transmission path	dedicated path
Delay	Packet transmission delay	Call setup delay
Addressing	Each packet contains the full source and destination address	Only data is sent
Bandwidth	Dynamic Bandwidth	Fixed Bandwidth
Routing	Each packet is routed independently	Entire data is sent through the same path
Congestion control	Difficult	Easy if enough buffers can be allocated in advance for each VC set up
Complexity	In the transport layer	In the network layer
Suited for	Connection-oriented and connectionless service	Connection-oriented service

2. What is Virtual circuit Switching?

In the virtual circuit approach, the relationship between all packets belonging to a message or session is preserved single route is chosen between sender and receiver at the beginning of the session. When the data are sent all packets of the transmission travel one after another along that route Virtual circuit transmission is implemented in two formats - PVC, SVC.

3. What are the different types of source routing approach?

1. Rotation
2. Stripping off
3. Using pointers

4. Which class IP addresses are used for multicast and unicast?

Unicast : Class A, Class B , Class C
Multicast: Class D

5. Define Unicasting, Broadcasting and Multicasting.

Unicasting: Transmitting data from a single sender to a single receiver.

Broadcasting: Transmitting data from a single source to all the other nodes in the network

Multicasting: Transmitting data from a single source to a group of destination nodes.

6. Classify the following addresses

23.85.48.119 ----- Class A

127.24.34.56 ----- Class A
 159.78.9.10 ----- Class B
 195.20.10.11. ----- Class C
 220.36.123.47 ----- Class D
 245.31.220.225----- Class 3

7. What is IP address?

An Internet Address is made of four bytes (32 bits) that define a host's connection to a network.

Class	Netid	Hosted
-------	-------	--------

There are currently 5 different field lengths patterns, each define a class of addresses. These are designed to cover the needs of different types of organizations, class A, B, C, D, E.

8. Differentiate Physical Address and Logical Address.

Physical Address	Logical Address
1. It is implemented by data link layer.	It is implemented by n/w layer.
2. It contains 48 bits.	It contains 32 bits
3. It is a local addressing system.	It is an universal address system.
4. Another name MAC address.	Another name IP address.
5. It is flat in nature	Hierarchical in nature
6. Does not give any clue for routing	Its structure gives clue for routing

9. How many network addresses and host addresses are supported by class A, class B networks?

Class A: Number of networks = 127
 Number of hosts = $2^{24} - 1$
 Class B : Number of networks = $2^{14} - 1$
 Number of hosts = $2^{16} - 1 = 65,535$

10. Define Router.

- A router operates as the physical, data link and network layer of the OSI model ,
- A router is termed as an intelligent device. Therefore, its capabilities are much more than those of a repeater or a bridge.
- A router is useful for interconnecting two or more heterogeneous networks that differ in their physical characteristics such as frame size, transmission rates, topologies, addressing etc.
- A router has to determine the best possible transmission path among several available paths.

11. What does a router do when it receives a packet with a destination address that it does not have an entry for, in its routing table?

Default Router: If IP Software is not able to find the destination, from routing table then it sends the datagram to default router. It is useful when a site has small set of local address connected to it and connected to the rest of the Internet.

12. Define ARP.

Associates an IP address with physical address. It is used to find the physical address of the node when its Internet address is known. Any time a host/router needs to find the physical address of another host on its network, it formats an ARP query packet that includes the IP address and broadcasts it. All hosts in the network process the ARP packet but only the required station sends back physical address.

13. Define RARP

Allows a host to discover its internet address when it knows only its physical address (a diskless computer). The host wishing to retrieve its internet address broadcasts an RARP query packet that contains its physical address to every host on its physical network. A server on the network recognizes the RARP packet and returns the host’s internet address.

14. What do you mean by ICMP? To whom ICMP reports error message.

ICMP is an error reporting mechanism. It does not specify the action to be taken for each possible error. The source must relate the error to an individual application program and take other actions to correct the problem.

ICMP allows routers to send error messages to other router or hosts. ICMP is an error reporting mechanism. It does not specify the action to be taken for each possible error. It is informing the source that the error has occurred and the source has to take actions to rectify the errors.

15. List out functions of IP.

IP services unreliable, best-effort, connectionless packet system.

Unreliable – delivery is not guaranteed

Connectionless – each packet is treated independent from others

Best-effort delivery – it makes an earnest attempt to deliver packets.

- It defines basic unit of data transfer through TCP/IP.
- IP s/w performs routing function – finds a path from source to destination.
- IP includes a set of rules that embody the idea of unreliable packet delivery

16. What is the use of TTL in IP header?

It lets how long that datagram is allowed to live in the network. The source sets that time. Routers and hosts in the path of that datagram should decrement TTL and removes it when TTL = 0 and send an error message to the source. TTL is written hops or time in seconds.

17. What is internetworking and what are its principles?

Internet is an interconnected set of networks. From outside it looks like a simply layer n/w. A collection of communication networks interconnected by routers is called internetworking.

Principle of inter networks

- Provide a link between networks.
- Provide routing for delivery of packets.

18. What are the important fields in a routing table?

- Destination
- Cost
- Next Hop

19. Write the difference between Distance vector routing and Link state routing.

Distance Vector Routing	Link state routing
1. Basic idea is each node sends its knowledge about the entire network to its neighbours.	1. Basic idea is every node sends its knowledge about its neighbours to the entire network
2. It is dynamic routing	2. It is dynamic routing
3. RIP uses Distance vector routing	3. OSPF uses link state routing

20. List some of the unicast routing protocols.

- Routing Information Protocol (RIP) for IP
- Open Shortest Path First (OSPF)

UNIT - IV

1. Give any two Transport layer service

1. Multiplexing:-

Transport layer performs multiplexing/ demultiplexing function. Multiple applications employ same transport protocol, but use different port number. According to lower layer n/w protocol, it does upward multiplexing or downward multiplexing.

(eg) X.25 can have 4095 VC. Multiple services can use that single VC using upward multiplexing.

(eg) X.25 can use only 3bit/7bit/15bit sequence number. So a high speed network may need a larger sequence space. For that downward multiplexing / splitting used to improve throughput.

2. Reliability : [Error Control and Flow Control]

2. How an application process running in one host is addressed by another process through TCP?

It uses socket address (host, port).

Port represents a particular transport service in a host.

3. What are the various adaptive retransmission policy of TCP.

- Simple average
- Exponential / weighted average
- Exponential RTT backoff
- Jacobson's Algorithm

4. What do you mean by congestion?

Any given node has a number of I/O ports attached to it. There are two buffers at each port— one to accept arriving packets & another one to hold packets that are waiting to depart. If packets arrive too fast node than to process them or faster than packets can be cleared from the outgoing buffers, then there will be no empty buffer.

The first such strategy is to discard any incoming packet for which there is no available buffer space. The alternative is for the node that is experiencing these problems to exercise some sort of flow control over its neighbors so that the traffic flow remains manageable.

5. Name the policies that can prevent congestion.

- a. Additive Increase Multiplicative decrease
- b. Slowstart mechanism
- c. Fast retransmit and fast recovery

6. What is the main difference between TCP & UDP?

TCP	UDP
It provides Connection oriented service	Provides connectionless service.
Connection Establishment delay will be there	No connection establishment delay
Provides reliable service	Provides unreliable, but fast service
It is used by FTP, SMTP	It is used by audio, video and multimedia applications.

7. Give the datagram format of UDP.

Source port Address 16 bits	Destination port Address 16 bits
Total Length 16 bits	Checksum 16 bits

- Source port address:- It is the address of the application program that has created the message.
- **Destination port address:-** It is the address of the application program that will receive the message.
- **Total Length :-** It defines the total length of the user datagram in bytes.
- **Checksum :-** It is a 16 – bit field used in error correction.

8. Give some examples for situations using UDP.

It is very useful for audio or video delivery which does not need acknowledgement. It is useful in the transmission of multimedia data.

9. How does TCP sender window size change using effective window?

Calculation of effective window: **TCP on Receiver side must keep**

Last Byte Received – Last Byte Read <= Max Rcv Buffer.

It advertises a window size of

Advertised window = Max Rev buffer – (Last ByteReceived – Last ByteRead)

(i.e.) free space in received buffer.

TCP on sender side

Sender calculates an effective window,

Effective Window = Advertised window –(Last Byte sent – Last Byte Acknowledged)

If Effective. Window > 0 Source can send data.

10. What are the different phases in TCP state machine?

- Connection Establishment
- Data transfer
- Connection Release

11. How check sum is calculated in TCP?

To compute checksum, UDP/TCP prepends a pseudo header to datagram.

Source IP address		
Destination IP address		
Zero	Protocol	TCP Length

Pseudo header is not transmitted nor they included in length. To compare checksum,

- Store zeroes in CHECKSUM field
- Entire object (pseudo header, header , data) is divided into 16 bits.
- Added & taken ones complemented.

12. What is SYN segment?

It is used to start a TCP connection and provides agreement between sender and receiver on sequence number

13. Name the policies that can prevent congestion.

- DEC bit.
- Random Early Detection(RED).
- Source based congestion avoidance.

14. How do transport services differ from the data link layer services?

The data link layer services are at node to node level. But the transport layer services are end to end level. Both the layers are having the flow control and error control mechanisms. The data link layer offers at node to node level. But the transport layer offers at end to end level. Data link layer is responsible for node to node delivery of the frames while transport layer is responsible for end to end delivery of the entire message.

15. What are the TCP services to provide reliable communication?

- Error control
- Flow control
- Connection control and
- Congestion control

19. Define the DEC bit mechanism.

Each router under this mechanism monitors the load and explicitly notifies the end nodes when congestion is going to occur. This notification is implemented by setting a binary congestion bit which is known as DEC bit, in the header of the packet that follows to the router. The destination host copies this DEC bit into the corresponding ACK and sends back to source. Now source can adjust its sending rate to avoid congestion.

20. List out various congestion control and congestion avoidance techniques

congestion control: AIMD, slow start, Fast retransmit and Recovery

congestion avoidance techniques: DEC bit , RED

UNIT – V

1. What is Session Description Protocol (SDP)?

SDP is rather general protocol that can be used in a variety of situation. It conveys the following information:

- The name and purpose of the session.
- Start and end time of the session.
- The media types that comprise the session.
- Detailed information needed to receive the session.

2. List the capabilities provided by the SIP (Session Intimation Protocol).

The capabilities provided by the SIP can be grouped into five categories:

- User location
- User availability
- User capabilities
- Session setup
- Session management

3. What is the Domain Name System responsible for?

The Domain Name System converts domain names (of the form www.vtubooks.com) into IP numbers.

4. Why do we need a Domain Name System? What role does the DNS Resolver play in the DNS system?

IP numbers uniquely identify hosts on the Internet: however they are difficult to remember. We therefore need a memorable way of identifying hosts.

A DNS Resolver is responsible for making requests of the local DNS server in behalf of clients.

5. How does a DNS Resolver bootstrap the Domain Name Lookup process?

A DNS Resolver must know the IP address of at least one DNS server. It uses this address to start the DNS Lookup process.

6. What are the four main properties of HTTP?

- Global Uniform Resource Identifier.
- Request-response exchange.
- Statelessness.
- Resource metadata.

7. What are the four groups of HTTP Headers?

The four groups of HTTP headers are General headers, Entity Headers, Request Headers and Response Headers.

8. What is WWW and SMTP?

The SMTP is used for connection between sending mail. WWW is an internet application that allows user to view pages and move from one web page to another.

9. What do you mean by active web pages?

When a client send a HTTP request for an active Web page, the Web server sends back an HTTP response that contains an HTML page as usual. HTML page also contains a small program that executes on the client computer inside the Web browser.

10. What are the transmission modes of FTP?

- i. Stream mode: Default mode and data is delivered from FTP to TCP as a continuous stream of data.
- ii. Block mode: Data is delivered from FTP to TCP in terms of blocks. Each data block follows the three byte header.
- iii. Compressed mode: File is compressed before transmitting if size is big. Run length encoding method is used for compression.

12. Compare the HTTP and FTP:

Sr.No	FTP	HTTP
1.	FTP transfers the file from client to server and server to client.	HTTP transfer the file from server to client.(i.e. web pages)
2.	It uses two different port connections. (i.e. port 20 and port 21)	HTTP use only one port connection. (i.e. Port 80)
3.	Uses TCP protocol.	It also use TCP protocol.

13. List the two types of DNS message.

DNS messages are: Query and Response. The query message consists of the header and the question records. The response message consists of a header, question record, answer record, authoritative record and additional record.

11. Define threats.

Information access threats intercept or modify data on behalf of users who should not have access to that data. Service threats exploit service flaws in computers to inhibit use by legitimate users.

12. What is meant by attack?

An attack on system security that derives from an intelligent threat: that is an intelligent act that is a deliberate attempt to evade security services and violate the security policy of a system.

13. What is use of digital signature?

Data appended to, or a data unit that allows a recipient of the data unit to prove the source and integrity if the data unit and protect against forgery.

14. What is a URL and web browser?

Uniform Resource Locator is a string identifier that identifies a page on the World Wide Web. Web browser is a software program that interprets and displays the contents of HTML web pages.

15. What are the basic functions of e-mail?

Basic functions of e-mail are : composition, Transfer, Reporting, Displaying, and Disposition.

16. What is rlogin? What are the two methods of HTTP?

Remote login is used to login into remote system and access its contents.

Two methods of HTTP are GetMethod() and PostMethod().

17. What is the main difference between FTP & HTTP?

FTP – Out – of – band

HTTP – In – band

FTP uses two parallel TCP connections to transfer a file. They are Control Connection and Data connection.

18. What are the advantages of stateless server of HTTP?

Because of the statelessness of HTTP, it need not remember any transaction, request or response. This results in a very simple implementation without the need for complex state machines.

19. What is the use of MIME Extension?

MIME converts binary files, executed files into text files. Then only it can be transmitted using SMTP

SMTP cannot transmit text data including national language characters. MIME translates all these non ASCII codes to SMTP 7 bit ASCII code

Messages – more than certain size can be translated by MIME into SMTP acceptable size

20. Which protocol support email and give details about that protocol?

SMTP is a standard protocol for transferring mails using TCP/IP

- SMTP standardization for message character is 7 bit ASCII
- SMTP adds log info to the start (i.e.) path of the message

21. What is TFTP?

TFTP is designed for transferring bootstrap and configuration files. It is so simple and it can fit into ROM of a diskless memory.

TFTP does reading and writing of files. Reading means copying file from server site to client site. Writing in TFTP means copying a file from client site to server site.

22. Define NIC and NAT.

A **domain name registry**, also called **Network Information Centre (NIC)**, is part of the Domain Name System (DNS) of the Internet which converts domain names to IP addresses.

NAT: In computer networking, **network address translation (NAT)**, also known as *network masquerading*, *native address translation* or *IP masquerading*) is a technique of transceiving network traffic through a router that involves re-writing the source and/or destination IP addresses and usually also the TCP/UDP port numbers of IP packets as they pass through. Most systems using NAT do so in order to enable multiple hosts on a private network to access the Internet using a single public IP address.

23. What is MIB?

Management Information Base: Object is a data variable that represents one aspect of the management agent. It represents resources.

Collection of objects is known as MIB. A management station performs

- monitoring MIB objects
- retrieving MIB objects value
- change MIB object value

24. Different classification of DNS servers.

Internet is divided into many top level domains. Each domain is divided into sub domain and so on.

Topmost domains are categorized into generic and countries.

Generic domain categories are:

com-	commercial
gov-	US government
edu-	educational
org-	profile organization
mil-	US military
net-	network providers.

country category

uk -	United kingdom
jp -	Japan
in -	India

25. What an application program of DNS does?

The application program interested in obtaining IP address of a domain name calls a library program "Resolver". Resolver sends UDP packet to nearest DNS server (local DNS server)

Local DNS server looks up domain name and returns IP address to resolver as in previous part. Resolver returns IP address to application program.

26. Mention the components of SNMP model.

Key elements of Network Management System:

- Management station / Manager
- Agent
- Management Information base
- Network Management Protocol

27. Describe why HTTP is designed as a stateless protocol.

Maintaining state across request-response connections significantly increase the initial interactions in a connection since the identity of each party needs to be established and any saved state must be retrieved. HTTP is therefore stateless to ensure that the Internet is scalable since state is not contained in the HTTP request/response pairs by default.