3. Which of the following is an example of Bluetooth?
d) personal area network
Explanation: Bluetooth is a wireless technology used to create a wireless personal area network for data transfer up to a distance of 10 meters. It operates on 2.45 GHz frequency band for transmission.
4. Which of the following computer networks is built on the top of another network?
a) overlay network
5. What is the full form of OSI?
c) open system interconnection
6. When a collection of various computers appears as a single coherent system to its clients, what is this called?
d) distributed system
8. What are nodes in a computer network?
a) the computer that routes the data
b) the computer that terminates the data
c) the computer that originates the data
d) all of the mentioned
Answer: d
9. Which one of the following is not a function of network layer?
b) error control
Explanation: In the OSI model, network layer is the third layer and it provides data routing paths for network communications. Error control is a function of the data link layer and the transport layer.
12. What is the term for an endpoint of an inter-process communication flow across a computer network?
c) socket
13. How do two devices become part of a network?
b) a process in one device is able to exchange information with a process in another device
14. Which layer does the data link layer take packets from and encapsulate them into frames for transmission?
c) network layer
15. Which of this is not a network edge device?
a) Switch
Answer: a
Explanation: Network edge devices refer to host systems, which can host applications like web browser. A switch can't operate as a host, but as a central device which can be used to manage network communication.
16. Which type of network shares the communication channel among all the machines?
d) broadcast network
17. Which topology requires a multipoint connection?
b) Bus
18. Which of the following maintains the Domain Name System?
c) distributed database system
19. When discussing IDS/IPS, what is a signature?
d) Attack-definition file
Explanation: IDSes work in a manner similar to modern antivirus technology. They are constantly updated with attack-definition files (signatures) that describe each type of known malicious activity. Nemean is a popular signature generation method for conventional computer networks.
21. Which of the following networks extends a private network across public networks?
a) virtual private network

23. What does each packet contain in a virtual circuit network?
d) a short VC number
24. What is the term for the data communication system within a building or campus?
b) LAN
25. What was the name of the first network?
b) ARPANET
26. Which of the following is the network layer protocol for the internet?
d) internet protocol
27. Which network topology requires a central controller or hub?
c) Star
29. Which of the following allows LAN users to share computer programs and data?
a) File server
31. Which layer provides the services to user?
d) application layer
32. Which connection is necessary for a computer to join the internet?
b) internet service provider
33. Which of the following allows you to connect and login to a remote computer?
d) Telnet
34. Which of the following is used in an attempt to render a computer resource unavailable to its intended users?
d) denial-of-service attack
1. The IETF standards documents are called _____
Answer: a
Explanation: RFC stands for Request For Comments and they are documents that describe methods, behaviors, research, or innovations applicable to the working of the Internet.
3. The structure or format of data is called _____
a) Syntax
5. The first Network was called _____
d) ARPANET
7. Which organization has authority over interstate and international commerce in the communications field?
c) FCC
Answer: c
Explanation: FCC is the abbreviation for Federal Communications Commission. FCC is responsible for regulating all interstate communications originating or terminating in USA. It was founded in the year 1934.
9. A _____ set of rules that governs data communication.
a) Protocols
Answer: a
Explanation: In communications, a protocol refers to a set of rules and regulations that allow a network of nodes to transmit and receive information. Each layer in the network model has a protocol set, for example, the transport layer has TCP and UDP protocols.
10. Three or more devices share a link in _____ connection.
b) Multipoint
Answer: b
Explanation: A multipoint communication is established when three or many network nodes are connected to each other. Frame relay, Ethernet and ATM are some examples of multipoint connections.

1. When collection of various computers seems a single coherent system to its client, then it is called _____
b) distributed system
Answer: b
Explanation: A Computer network is defined as a collection of interconnected computers which uses a single technology for connection.
A distributed system is also the same as computer network but the main difference is that the whole collection of computers appears to its users as a single coherent system.
Example:- World wide web
8. A list of protocols used by a system, one protocol per layer, is called _____
b) protocol stack
1. How many layers are present in the Internet protocol stack (TCP/IP model)?
a) 5
Answer: a
Explanation: There are five layers in the Internet Protocol stack. The five layers in Internet Protocol stack is Application, Transport, Network, Data link and Physical layer. The internet protocol stack model is also called the TCP/IP model and it's used in modern Internet Communication.
3. Which of the following layers is an addition to OSI model when compared with TCP IP model?
d) Session and Presentation layer
4. Application layer is implemented in _____
a) End system
Answer: a
Explanation: Not only application layer, but presentation layer, session layer and transport layer are also implemented in the end system. The layers below are implemented outside the end system, for example, the network layer is implemented on the routers and the physical layer is implemented for the medium.
5. Transport layer is implemented in _____
a) End system
Answer: a
Explanation: Application, Presentation, Session and Transport layer are implemented in the end system. The transport layer handles the process to process delivery of the packet through ports.
6. The functionalities of the presentation layer include _____
a) Data compression
b) Data encryption
c) Data description
d) All of the mentioned
Answer: d
Explanation: Some functions of the presentation layer include character-code translation, data conversion, data encryption and decryption, and data translation. It connects the application layer with the layers below converting the human readable text and media to machine readable format and vice-versa.
7. Delimiting and synchronization of data exchange is provided by _____
b) Session layer
Answer: b
Explanation: The session layer provides the mechanism for opening, closing and managing a session between end-user application processes. The session layer 5 is responsible for establishing managing synchronizing and terminating sessions. In TCP/IP protocol stack, the functions of the session layer are handled by the transport layer itself and thus the session layer is missing from the TCP/IP model.

8. In OSI model, when data is sent from device A to device B, the 5th layer to receive data at B is _____

d) Session layer

Answer: d

Explanation: In OSI reference model, the fifth layer is Session layer. Session layer provides the mechanism for opening, closing and managing a session between end-user application processes. In TCP/IP protocol stack, the functions of the session layer are handled by the transport layer itself and thus the session layer is missing from the TCP/IP model.

9. In TCP IP Model, when data is sent from device A to device B, the 5th layer to receive data at B is _____

a) Application layer

Answer: a

Explanation: In TCP/IP model, the fifth layer is application layer. When data is sent from device A to device B, the 5th layer to receive data at B is application layer. Application layer provides the interface between applications and the network. The user interacts with only this layer.

10. In the OSI model, as a data packet moves from the lower to the upper layers, headers are _____

b) Removed

Answer: b

Explanation: In OSI reference model, when data packet moves from lower layers to higher layer, headers get removed. Whereas when the data packet moves from higher layer to lower layers, headers are added. These headers contain the essential control information for the protocols used on the specific layer.

11. Which of the following statements can be associated with OSI model?

c) Functionality at one layer no way requires information from another layer.

Answer: c

Explanation: One layer may use the information from another layer, for example timestamp value. The information is contained in the header inserted by the previous layer. The headers are added as the packet moves from higher layers to the lower layers.

4. Which layer is used to link the network support layers and user support layers?

c) transport layer

Answer: c

Explanation: Physical, data link and network layers are network support layers and session, presentation and application layers are user support layers. The transport layer links these layers by segmenting and rearranging the data. It uses protocols like TCP and UDP.

5. Which address is used on the internet for employing the TCP/IP protocols?

a) physical address and logical address

b) port address

c) specific address

d) all of the mentioned

Answer: d

Explanation: The physical, logical, port and specific addresses are used in TCP/IP protocol. All the addressing schemes, that is physical (MAC) and logical address, port address and specific address are employed in both TCP/IP model and OSI model. In TCP/IP, the addresses are more focused on the internet implementation of these addresses.

6. TCP/IP model was developed _____ the OSI model.

a) prior to

Answer: a
Explanation: Several TCP/IP prototypes were developed at multiple research centers between 1978 and 1983, whereas OSI reference model was developed in the year 1984. TCP/IP was developed with the intention to create a model for the Internet while OSI was intended to be a general network model.
10. Transmission data rate is decided by _____
b) physical layer
Answer: b
Explanation: Physical layer is a layer 1 device which deals with network cables or the standards in use like connectors, pins, electric current used etc. Basically the transmission speed is determined by the cables and connectors used. Hence it is physical layer that determines the transmission speed in network. Some of the cables used for high speed data transmission are optical fiber cables and twisted pair cables.
1. The physical layer is concerned with _____
a) bit-by-bit delivery
Answer: a
Explanation: Physical layer deals with bit to bit delivery in networking. The data unit in the physical layer is bits. Process to process delivery or the port to port delivery is dealt in the transport layer. The various transmission mediums aid the physical layer in performing its functions.
4. The portion of physical layer that interfaces with the media access control sublayer is called _____
a) physical signalling sublayer
Answer: a
Explanation: The portion of physical layer that interfaces with the medium access control sublayer is Physical Signaling Sublayer. The main function of this layer is character encoding, reception, decoding and performs optional isolation functions. It handles which media connection the signal should be forwarded to physically.
5. The physical layer provides _____
a) mechanical specifications of electrical connectors and cables
b) electrical specification of transmission line signal level
c) specification for IR over optical fiber
d) all of the mentioned
Answer: d
Explanation: Anything dealing with a network cable or the standards in use – including pins, connectors and the electric current used is dealt in the physical layer (Layer 1). Physical layer deals with bit to bit delivery of the data aided by the various transmission mediums.
6. In asynchronous serial communication the physical layer provides _____
c) both start & stop signalling and flow control
Answer: c
Explanation: In asynchronous serial communication, the communication is not synchronized by clock signal. Instead of a start and stop signaling and flow control method is followed. Unlike asynchronous serial communication, in synchronous serial communication a clock signal is used for communication, so the start and stop method is not really required.
7. The physical layer is responsible for _____
a) line coding
b) channel coding
c) modulation
d) all of the mentioned

Answer: d
Explanation: The physical layer is responsible for line coding, channel coding and modulation that is needed for the transmission of the information. The physical configuration including pins, connectors and the electric current used is dealt in the physical layer based on the requirement of the network application.
8. The physical layer translates logical communication requests from the _____ into hardware specific operations.
a) data link layer
Answer: a
Explanation: Physical layer accepts data or information from the data link layer and converts it into hardware specific operations so as to transfer the message through physical cables. Some examples of the cables used are optical fiber cables, twisted pair cables and co-axial cables.
10. Wireless transmission of signals can be done via _____
a) radio waves
b) microwaves
c) infrared
d) all of the mentioned
Answer: d
Explanation: Wireless transmission is carried out by radio waves, microwaves and IR waves. These waves range from 3 Khz to above 300 Ghz and are more suitable for wireless transmission. Radio waves can penetrate through walls and are used in radio communications, microwaves and infrared (IR) waves cannot penetrate through walls and are used for satellite communications and device communications respectively.
2. Which of the following tasks is not done by data link layer?
d) channel coding
Answer: d
Explanation: Channel coding is the function of physical layer. Data link layer mainly deals with framing, error control and flow control. Data link layer is the layer where the packets are encapsulated into frames.
3. Which sublayer of the data link layer performs data link functions that depend upon the type of medium?
b) media access control sublayer
Answer: b
Explanation: Media access control (MAC) deals with transmission of data packets to and from the network-interface card, and also to and from another remotely shared channel. The MAC sublayer also prevents collision using protocols like CSMA/CD.

4. Header of a frame generally contains _____
a) synchronization bytes
b) addresses
c) frame identifier
d) all of the mentioned
Answer: d
Explanation: In a frame, the header is a part of the data that contains all the required information about the transmission of the file. It contains information like synchronization bytes, addresses, frame identifier etc. It also contains error control information for reducing the errors in the transmitted frames.

5. Automatic repeat request error management mechanism is provided by _____
a) logical link control sublayer
Answer: a
Explanation: The logical link control is a sublayer of data link layer whose main function is to manage traffic, flow and error control. The automatic repeat request error management mechanism is provided by the LLC when an error is found in the received frame at the receiver's end to inform the sender to re-send the frame.
6. When 2 or more bits in a data unit has been changed during the transmission, the error is called _____
b) burst error
Answer: b
Explanation: When a single bit error occurs in a data, it is called single bit error. When more than a single bit of data is corrupted or has error, it is called burst error. If a single bit error occurs, the bit can be simply repaired by inverting it, but in case of a burst error, the sender has to send the frame again.
7. CRC stands for _____
a) cyclic redundancy check
Answer: a
Explanation: Cyclic redundancy check is a code that is added to a data which helps us to identify any error that occurred during the transmission of the data. CRC is only able to detect errors, not correct them. CRC is inserted in the frame trailer.
8. Which of the following is a data link protocol?
a) ethernet
b) point to point protocol
c) hdlc
d) all of the mentioned
Answer: d
Explanation: There are many data link layer protocols. Some of them are SDLC (synchronous data link protocol), HDLC (High level data link control), SLIP (serial line interface protocol), PPP (Point to point protocol) etc. These protocols are used to provide the logical link control function of the Data Link Layer.
9. Which of the following is the multiple access protocol for channel access control?
c) Both CSMA/CD & CSMA/CA
Answer: c
Explanation: In CSMA/CD, it deals with detection of collision after collision has occurred, whereas CSMA/CA deals with preventing collision. CSMA/CD is abbreviation for Carrier Sensing Multiple Access/Collision detection. CSMA/CA is abbreviation for Carrier Sensing Multiple Access/Collision Avoidance. These protocols are used for efficient multiple channel access.
10. The technique of temporarily delaying outgoing acknowledgements so that they can be hooked onto the next outgoing data frame is called _____
a) piggybacking
Answer: a
Explanation: Piggybacking is a technique in which the acknowledgment is temporarily delayed so as to be hooked with the next outgoing data frame. It saves a lot of channel bandwidth as in non-piggybacking system, some bandwidth is reserved for acknowledgement.
2. Which one of the following is not a function of network layer?
d) error control

Answer: d
Explanation: In the OSI model, network layer is the third layer and it provides data routing paths for network communications. Error control is a function of the data link layer and the transport layer.
4. In virtual circuit network each packet contains _____
b) a short VC number
Answer: b
Explanation: A short VC number also called as VCID (virtual circuit identifier) is a type of identifier which is used to distinguish between several virtual circuits in a connection oriented circuit switched network. Each virtual circuit is used to transfer data over a larger packet switched network.
5. Which of the following routing algorithms can be used for network layer design?
a) shortest path algorithm
b) distance vector routing
c) link state routing
d) all of the mentioned
Answer: d
Explanation: The routing algorithm is what decides where a packet should go next. There are several routing techniques like shortest path algorithm, static and dynamic routing, decentralized routing, distance vector routing, link state routing, Hierarchical routing etc. The routing algorithms go hand in hand with the operations of all the routers in the networks. The routers are the main participants in these algorithms.
6. Which of the following is not correct in relation to multi-destination routing?
a) is same as broadcast routing
b) contains the list of all destinations
c) data is not sent by packets
d) there are multiple receivers
Answer: c
Explanation: In multi-destination routing, there is more than one receiver and the route for each destination which is contained in a list of destinations is to be found by the routing algorithm. Multi-destination routing is also used in broadcasting.
7. A subset of a network that includes all the routers but contains no loops is called _____
a) spanning tree
Answer: a
Explanation: Spanning tree protocol (STP) is a network protocol that creates a loop free logical topology for ethernet networks. It is a layer 2 protocol that runs on bridges and switches. The main purpose of STP is to ensure that you do not create loops when you have redundant paths in your network.
8. Which one of the following algorithm is not used for congestion control?
a) traffic aware routing
b) admission control
c) load shedding
d) routing information protocol
Answer: d
Explanation: The Routing Information Protocol (RIP) is used by the network layer for the function of dynamic routing. Congestion control focuses on the flow of the traffic in the network and uses algorithms like traffic aware routing, admission control and load shedding to deal with congestion.
9. The network layer protocol for internet is _____
b) internet protocol

Answer: b
Explanation: There are several protocols used in Network layer. Some of them are IP, ICMP, CLNP, ARP, IPX, HRSP etc. Hypertext transfer protocol is for application layer and ethernet protocol is for data link layer.
10. ICMP is primarily used for _____
a) error and diagnostic functions
Answer: a
Explanation: ICMP abbreviation for Internet Control Message Protocol is used by networking devices to send error messages and operational information indicating a host or router cannot be reached. ICMP operates over the IP packet to provide error reporting functionality as IP by itself cannot report errors.
5. An endpoint of an inter-process communication flow across a computer network is called _____
a) socket
Answer: a
Explanation: Socket is one end point in a two way communication link in the network. TCP layer can identify the application that data is destined to be sent by using the port number that is bound to socket.
6. Socket-style API for windows is called _____
b) winsock
7. Which one of the following is a version of UDP with congestion control?
a) datagram congestion control protocol
Answer: a
Explanation: The datagram congestion control is a transport layer protocol which deals with reliable connection setup, teardown, congestion control, explicit congestion notification, and feature negotiation. It is used in modern day systems where there are really high chances of congestion. The protocol was last updated in the year 2008.
8. A _____ is a TCP name for a transport service access point.
a) port
Answer: a
Explanation: Just as the IP address identifies the computer, the network port identifies the application or service running on the computer. A port number is 16 bits. The combination of IP address preceded with the port number is called the socket address.
10. Which of the following is a transport layer protocol?
a) stream control transmission protocol
Answer: a
Explanation: The Stream Control Transmission Protocol (SCTP) is a transport layer protocol used in networking system where streams of data are to be continuously transmitted between two connected network nodes. Some of the other transport layer protocols are RDP, RUDP, TCP, DCCP, UDP etc.
9. Bytes of data being transferred in each connection are numbered by TCP. These numbers start with a _____
a) Fixed number
b) Random sequence of 0's and 1's
c) One
d) Sequence of zero's and one's
Answer: d
Explanation: One might expect the sequence number of the first byte in the stream to be 0, or 1. But

that does not happen in TCP, Instead, the sender has to choose an Initial Sequence Number (ISN), which is basically a random 32 bit sequence of 0's and 1's, during the connection handshake.
10. The value of acknowledgement field in a segment defines _____
c) sequence number of the next byte to be received
Answer: c
Explanation: The acknowledgement field in a segment defines the sequence number of the byte which is to be received next i.e. sequence number of byte that the sender should transmit next.
3. _____ topology requires a multipoint connection.
d) Bus
Answer: d
Explanation: In bus topology, there is a single cable to which all the network nodes are connected. So whenever a node tries to send a message or data to other nodes, this data passes through all other nodes in the network through the cable. It is really simple to install but it's not secure enough to be used in most of the computer network applications.
7. In TDM, slots are further divided into _____
a) Seconds
b) Frames
c) Packets
d) Bits
Answer: b
Explanation: TDM is the abbreviation for Time division multiplexing. It is technique for combining several low rate channels to a single high rate channel. For a certain time slot, the several channels could use the maximum bandwidth. Each channel is inactive for a period of time too. Some other multiplexing techniques are Frequency division multiplexing and Phase division multiplexing.
1.The three topologies associated with LANs are _____
c) Bus, Ring and Star topology
Answer: c
Explanation: Bus, Ring and Star topology are related to LANs whereas Mesh, Tree, Circular and Hybrid are simply network topologies. The best topology for LAN is Star topology.
2. A pseudo topology that combines a Star topology with either Ring or Bus topology is known as _____
b) Hub
Answer: b
Explanation: Hubs are used to connect segments of LAN. It is a common connection point for devices present in a network. Star topology is usually combined with Bus topology using Hub as the backbone of Bus topology. Router, Ethernet and Switches are network components and can be introduced in network topologies.
3. The Tree topology is employed in network using _____
a) Brouters
Answer: a
Explanation: Brouters are bridged routers that do the routing function at OSI layer 2. Tree topology uses Brouters to get involved in a network. LAN is a private network used by one organization whereas WAN is used in a large geographical area. WAN is composed of multiple LANs. Switches are network components.
4. _____ topology is a combination of two or more topologies.
b) Hybrid
Answer: b
Explanation: A Hybrid topology comprises of a mixture of Star, Mesh, Ring and Bus topology. Hybrid

topology finds its application in Wide Area Networks. Connecting two similar network topologies cannot be termed as Hybrid topology. It is a highly reliable network.
5. The two types of LAN deployed are _____ and _____
c) Bus based, Ring based
Answer: c
Explanation: Bus and Ring topology are the two types of network deployed in LAN due to their many advantages over other network topologies. The Bus topology is easy to install, it uses established standards and it requires fewer media than other topologies. The Ring topology on the other hand is very easy to troubleshoot as each device incorporates as a Repeater.
6. Bus Architecture is implemented in LANs using _____
d) Ethernet Protocol
Answer: d
Explanation: Ethernet is the most widely installed local area network (LAN) technology. Ethernet is a link layer protocol in the TCP/IP stack. It describes how network devices can format data to other devices on the same network segment. The protocols ARP, HTTP and FTP are network protocols and have different applications.
7. Token Ring and FDDI configurations use the _____ topology.
a) ring
Answer: a
Explanation: FDDI is used for combining the Token Ring, Fast Ethernet and Fiber Optic Cable. Thus FDDI acts as a network backbone for connecting LANs to create MANs and WANs. FDDI uses dual-ring topology for this purpose instead of other network topologies.
8. Which protocol is most frequently used in Star topology?
d) Ethernet
Answer: d
Explanation: In a star network a number of devices and actuators are connected to a central hub. An advantage of Star topology is that data can be transferred using a simple serial communication protocol. Thus Ethernet is the protocol that makes this advantage possible.
9. Linear network topology is more expensive than other topologies.
a) True
b) False
Answer: b
Explanation: Linear network topology such as Bus topology is not expensive than other topologies. It requires less cable than Star topology. It is also easy to install computers and other devices in Linear network topology.
2. Multiplexing is used in _____
b) Circuit switching
Answer: b
Explanation: Circuit switching is a switching method by which one can obtain a physical path between end points. Circuit switching method is also called a connection oriented network. Two nodes must be physically and logically connected to each other to create a circuit switching network.
4. If there are n signal sources of same data rate, then the TDM link has _____ slots.
a) n
Answer: a
Explanation: In TDM, the total unit of time is divided equally among all the signal sources and each and every source has access to the complete channel bandwidth during its allotted time slot. When the time slot of the source is not active, it remains idle and waits for its slot to begin.
6. The state when dedicated signals are idle are called _____

c) Silent period
Answer: c
Explanation: There are instances when connection between two endpoints has been established, but no communication or transfer of messages occurs. This period of time is called silent period. The silent period ends when either of the two endpoints starts the communication.
7. Multiplexing provides _____
Answer: d
Explanation: Multiplexing helps us to transfer our messages over a shared channel. This brings up the issue of privacy and efficiency. Fortunately, Multiplexing has high efficiency and high privacy when implemented because in the implementation, the transport layer of the OSI network model handles the function of multiplexing through interfaces called ports which provide the required efficiency and privacy.
8. In TDM, the transmission rate of a multiplexed path is always _____ the sum of the transmission rates of the signal sources.
a) Greater than
Answer: a
Explanation: In TDM the transmission rate provided by the path that is multiplexed will always be greater than the sum of transmission rates of the single sources. This happens because the transmission rate is provided to each source only for a small period of time.
9. In TDM, slots are further divided into _____
b) Frames
Answer: b
Explanation: TDM is the abbreviation for Time division multiplexing. It is technique for combining several low rate channels to a single high rate channel. For a certain time slot, the several channels could use the maximum bandwidth. Each channel is inactive for a period of time too. Some other multiplexing techniques are Frequency division multiplexing and Phase division multiplexing.
1. Which of the following delay is faced by the packet in travelling from one end system to another?
a) Propagation delay
b) Queuing delay
c) Transmission delay
d) All of the mentioned
Answer: d
Explanation: When a packet has to travel from one end system to another, it first faces the queuing delay when there are multiple packets which are to be sent, then it faces the transmission delay to convert the packet into bits to be transmitted, and then it faces the propagation delay to propagate the bits through the physical medium.
2. For a 10Mbps Ethernet link, if the length of the packet is 32bits, the transmission delay is _____ (in microseconds)
a) 3.2
Answer: a
Explanation: Transmission rate = length / transmission rate = 32/10 = 3.2 microseconds.
3. The time required to examine the packet's header and determine where to direct the packet is part of _____
a) Processing delay
b) Queuing delay
c) Transmission delay
d) Propagation delay

Answer: a
Explanation: Processing delay is induced at a router's or other network processor's end in the path of the packet and is caused by the time taken by the processor to examine the packet's header to decide the further path of the packet.
4. Given L = number of bits in the packet, a = average rate and R = transmission rate. The Traffic intensity in the network is given by _____
a) La/R
b) LR/a
c) R/La
d) Ra/L
Answer: a
Explanation: Traffic Intensity = (Number of bits in packet * Average Transmission rate)/Current Transmission rate.
5. In the transfer of file between server and client, if the transmission rates along the path is 10Mbps, 20Mbps, 30Mbps, 40Mbps. The throughput is usually _____
Answer: b
Explanation: The throughput is generally the transmission rate of bottleneck link.
6. If end to end delay is given by dend-end = N(dproc + dtrans + dprop) is a non congested network. The number of routers between source and destination is?
c) N-1
Answer: c
Explanation: In the equation N (dproc + dtrans + dprop), N is the number of checkpoints/stops that the packet makes as it reaches the destination. The stops are made at each router and the final destination node. Now, since N = number of routers + final node, then number of routers = N – final node. As we know, there is only 1 final node in a path, thus, number of routers = N – 1. Suppose, There is a path A->R1->R2->B for a packet where A is the source node, B is the final node and R1 and R2 are routers. The total delay would be given by N (dproc + dtrans + dprop) where N = 3, since the packet would stop at R1, R2 and B. The number of routers here are 2, and (N – 1) is also 2.
7. The total nodal delay is given by _____
a) dnodal = dproc – dqueue + dtrans + dprop
b) dnodal = dproc + dtrans – dqueue
c) dnodal = dproc + dqueue + dtrans + dprop
d) dnodal = dproc + dqueue – dtrans – dprop
Answer: c
Explanation: The total node-to-node delay, that is, nodal delay is the sum of all, the processing delay, queuing delay, transmission delay and propagation delay. Ideally, the nodal delay must be low as possible for a better Quality of Service of the network.
8. In a network, If P is the only packet being transmitted and there was no earlier transmission, which of the following delays could be zero?
b) Queuing delay
Answer: b
Explanation: Since there is no other packet to be transmitted, there is no need for a queue. Therefore, the delay caused due to the queuing would be none i.e. 0.
2. The packet of information at the application layer is called _____
b) Message
1. Which is not a application layer protocol?
Answer: d
Explanation: TCP is transport layer protocol.

3. Which one of the following is an architecture paradigms?
d) Both Peer-to-Peer & Client-Server
4. Application developer has permission to decide the following on transport layer side
c) Both Transport layer protocol and Maximum buffer size
Answer: c
Explanation: Application layer provides the interface between applications and the network. So application developer can decide what transport layer to use and what should be its maximum buffer size.
5. Application layer offers _____ service.
a) End to end
6. E-mail is _____
c) Elastic application
8. Which of the following is an application layer service?
a) Network virtual terminal
b) File transfer, access, and management
c) Mail service
d) All of the mentioned
Answer: d
Explanation: The services provided by the application layer are network virtual terminal, file transfer, access and management, mail services, directory services, various file and data operations.
10. Which is a time-sensitive service?
d) Internet telephony
Answer: d
Explanation: Internet telephony is Loss-tolerant other applications are not.
11. Transport services available to applications in one or another form _____
a) Reliable data transfer
b) Timing
c) Security
d) All of the mentioned
Answer: d
Explanation: The transport services that are provided to application are reliable data transfer, security and timing. These are very important for proper end to end services.
2. Which one of the following allows a user at one site to establish a connection to another site and then pass keystrokes from local host to remote host?
c) Telnet
Answer: c
Explanation: Telnet is used for accessing remote computers. Using telnet a user can access computer remotely. With Telnet, you can log on as a regular user with whatever privileges you may have been granted to the specific application and data on the computer.
5. The ASCII encoding of binary data is called
a) base 64 encoding
Answer: a
Explanation: Base64 is used commonly in a number of applications including email via MIME, and storing complex data in XML. Problem with sending normal binary data to a network is that bits can be misinterpreted by underlying protocols, produce incorrect data at receiving node and that is why we use this code.
6. Which one of the following is an internet standard protocol for managing devices on IP network?
b) simple network management protocol

Answer: b
Explanation: SNMP is a set of protocols for network management and monitoring. This protocol is included in the application layer. SNMP uses 7 protocol data units.
7. Which one of the following is not an application layer protocol?
c) resource reservation protocol
Answer: c
Explanation: Resource reservation protocol is used in transport layer. It is designed to reserve resources across a network for quality of service using the integrated services model.
11. Which of the following is not correct?
a) Web cache doesnt has its own disk space
Answer: a
Explanation: Web cache or also known as HTTP cache is a temporary storage where HTML pages and images are stored temporarily so that server lag could be reduced.
4. HTTP client requests by establishing a _____ connection to a particular port on the server.
b) transmission control protocol
Answer: b
Explanation: HTTP clients perform requests using a TCP connection, because the TCP connection provides a more reliable service. UDP is not a reliable protocol, border gateway protocol is used on top of TCP, while domain host control protocol is a network layer protocol.
5. In HTTP pipelining _____
a) multiple HTTP requests are sent on a single TCP connection without waiting for the corresponding responses
Answer: a
Explanation: HTTP pipelining helps the client make multiple requests without having to waiting for each response, thus saving a lot of time and bandwidth for the client.
7. An SMTP session may not include _____
d) one HTTP transaction
Answer: d
Explanation: An SMTP session can only include SMTP transactions regardless the number. Any other protocol's transaction is not included in an SMTP session.