



Computer Networks

Lab 5

Lab Contents:

- i. MCQ

Choose the best answer to each of the following statements:

- 1) ... uses a dedicated communications path established for duration of conversation.
 - a. Circuit switching
 - b. Packet switching
 - c. Frame relay
 - d. Asynchronous Transfer Mode

- 2) ... is the actual measure of how much information can at a specific time of day, using specific internet routes, while downloading a specific file.
 - a. Bandwidth
 - b. Throughput
 - c. Topology
 - d. Data rate

- 3) The device used in a data communication network to perform the conversion between analogue and digital signals, is called a ...
 - a. front end processor.
 - b. modem.
 - c. decoder.
 - d. multiplexer.

- 4) Internet is ...
 - a. a local computer network.
 - b. a worldwide network of computers.
 - c. an interconnected network of computers .
 - d. a worldwide interconnected network of computers which use a common protocol to communicate with one another.

- 5) Internet requires ...
 - a. an international agreement to connect computers.
 - b. a local area network.
 - c. a commonly agreed set of rules to communicate between computers.
 - d. a World Wide Web.

- 6) Each computer connected to the internet must ...
 - a. be an IBM PC.
 - b. have a unique IP address.
 - c. be internet compatible.
 - d. have a modem connection.

- 7) IP address is currently ...
- a. 4 bytes long.
 - b. available in plenty.
 - c. 6 bytes long.
 - d. not assigned as it is all used up.
- 8) Internet uses ...
- a. Packet switching.
 - b. Circuit switching.
 - c. Telephone switching.
 - d. Telex switching.
- 9) World Wide Web (WWW) ...
- a. is another name for internet.
 - b. worldwide connection for computers.
 - c. collection of linked information residing on computers connected by the internet.
 - d. a collection of worldwide information.
- 10) Which of the following network topologies among the list below is incorrect?
- a. Star.
 - b. Internet.
 - c. Ring.
 - d. Bus.
- 11) ... layer is responsible for the delivery of packets end to end and implements a logical addressing.
- a. Physical
 - b. Data link
 - c. Network
 - d. Transport
- 12) ... layer controls the dialogues (connections) between computers.
- a. Application
 - b. Presentation
 - c. Session
 - d. Transport

- 13) ... layer divides data into segments.
- a. Physical
 - b. Data link
 - c. Network
 - d. Transport
- 14) ... is to add some control information to the data in order to do its job.
- a. Data Encapsulation
 - b. Data Decapsulaton
 - c. Layering
 - d. Check Error
- 15) A file is downloaded to a home computer using a 56 kbps modem connected to an Internet Service Provider. If the download completes in 2 minutes, estimate the maximum size of data downloaded? (Ignore any overhead bits)
- a. 13.44 Mbit
 - b. 336 Kbit.
 - c. 26.88 Mbit
 - d. 6.72 Mbit
- 16) A block of data consisting of 2048 bits is transmitted between two computers interconnected by 450 m of twisted-pair wire. If the transmission rate is 34 kbps determine, the ratio of propagation delay to transmission delay. (Assume a velocity of propagation of 2×10^8 ms⁻¹)
- a. 37.6×10^{-6}
 - b. 376×10^{-6}
 - c. 3.76×10^{-6}
 - d. 3.76×10^{-3}
- 17) Computers on a university campus are connected by a/an ...
- a. MAN
 - b. WAN
 - c. LAN
 - d. INTERNET
- 18) The primary function of the network layer is ...
- a. Error detection
 - b. Set up a session
 - c. Routing
 - d. Encryption

- 19) ... is not part of the TCP/IP model.
- a. Network access
 - b. Internet
 - c. Presentation
 - d. Application
- 20) Which of the following is not true about a frame?
- a. Data link layer header
 - b. Network layer header
 - c. Upper layer data
 - d. Data Link layer trailer
- 21) In the TCP/IP model what protocol is popular in the internet layer?
- a. TCP
 - b. UDP
 - c. IP
 - d. FTP
- 22) The ... topology of a network refers to how communication media physically connected and arranged.
- a. Logical
 - b. Physical
 - c. Geographical
 - d. Regional
- 23) The ... topology is the method used to pass the information between workstations.
- a. Logical
 - b. Physical
 - c. Geographical
 - d. Regional
- 24) In ... frames are said to broadcast on a medium.
- a. Mesh topology
 - b. Ring topology
 - c. Bus topology
 - d. Tree topology
- 25) The protocol that is used in bus topology is ...
- a. CSMA/CD.
 - b. CSMA/CA.
 - c. Pure ALOHA.
 - d. Slotted ALOHA.

- 26) In ... topology, each station is connected to a central controlling device.
- a. Mesh topology
 - b. Ring topology
 - c. Bus topology
 - d. Tree topology
- 27) In mesh topology, if we have N stations then the number of I/O ports in each station is ...
- a. N^2 .
 - b. $2N$.
 - c. $N-1$.
 - d. N .
- 28) In ... topology, each station is connected to all other stations.
- a. Mesh topology
 - b. Ring topology
 - c. Bus topology
 - d. Tree topology
- 29) In ... topology, each station is attached to its adjacent station by point-to-point links.
- a. Mesh topology
 - b. Ring topology
 - c. Bus topology
 - d. Tree topology
- 30) The token passing protocol is used in ...
- a. Mesh topology
 - b. Ring topology
 - c. Bus topology
 - d. Tree topology
- 31) If one connection between two stations in a ring network fails, ...
- a. The whole network will be down.
 - b. Has no effect on the network.
 - c. Has no effect on the network except the one station.
 - d. The two stations will be disconnected from the network.

- 32) If one connection between two stations in a mesh network fails, ...
- a. The whole network will be down.
 - b. Has no effect on the network.
 - c. Has no effect on the network except the one station.
 - d. The two stations will be disconnected from the network.
- 33) If one connection between two stations in a star network fails, ...
- a. The whole network will be down.
 - b. Has no effect on the network.
 - c. Has no effect on the network except the one station.
 - d. The two stations will be disconnected from the network.
- 34) The coaxial cables use connectors
- a. RJ-45
 - b. RJ-11
 - c. RS-232
 - d. BNC
- 35) The UTP use ... connectors
- a. RJ-45
 - b. RJ-11
 - c. RS-232
 - d. All the above
- 36) The STP use ... connectors
- a. RJ-45
 - b. RJ-11
 - c. RS-232
 - d. All the above
- 37) The maximum length of a UTP connection is ...
- a. 100m.
 - b. 1000m.
 - c. 1500m.
 - d. 20m.
- 38) The maximum length of an STP connection is ...
- a. 100m.
 - b. 1000m.
 - c. 1500m.
 - d. 20m.

- 39) The maximum speed of a UTP connection is ...
- a. 10bps.
 - b. 10Mbps.
 - c. 100Mbps.
 - d. 1000Mbps.
- 40) The maximum speed of an STP connection is ...
- a. 10bps.
 - b. 10Mbps.
 - c. 100Mbps.
 - d. None of the above.
- 41) The maximum length of fiber optic cable is and its maximum speed is
- a. 25km, 2Mbps.
 - b. 25m, 2Gbps.
 - c. 25km, 2Gbps.
 - d. None of the above.
- 42) The Hub is ... device
- a. 1-layer
 - b. 2-layer
 - c. 3-layer
 - d. 4-layer
- 43) The hub is a multiport ...
- a. Repeater.
 - b. Switch.
 - c. Router.
 - d. None of the above.
- 44) The router is ... device
- a. 1-layer
 - b. 2-layer
 - c. 3-layer
 - d. 4-layer
- 45) Routers ...
- a. Forward the packet as it is without looking inside it.
 - b. Can identify the Mac addresses of the source and destination only.
 - c. Can identify the IP addresses of the source and destination.
 - d. None of the above.

- 46) Switches ...
- a. Forward the packet as it is without looking inside it.
 - b. Can identify the Mac addresses of the source and destination.
 - c. Can identify the IP addresses of the source and destination.
 - d. None of the above.
- 47) Hubs ...
- a. Forward the packet as it is without looking inside it.
 - b. Can identify the Mac addresses of the source and destination only.
 - c. Can identify the IP addresses of the source and destination.
 - d. None of the above.
- 48) The Ethernet network technology uses ... protocol
- a. CSMA/CD
 - b. CSMA/CA
 - c. Pure ALOHA
 - d. Slotted ALOHA
- 49) The probability of a collision occurring in CSMA/CD is proportional to ...
- a. The number of stations.
 - b. The frequency of transmissions.
 - c. Size of frames.
 - d. All of the above.
- 50) ... has a speed of 10Mbps, baseband transmission and can have a length up to 500m.
- a. 10Base5
 - b. 10Base2
 - c. 10BaseT
 - d. 10Base-FL
- 51) ... has a speed of 10Mbps, baseband transmission and can have a length up to 200m.
- a. 10Base5
 - b. 10Base2
 - c. 10BaseT
 - d. 10Base-FL
- 52) ... has a speed of 10Mbps, baseband transmission and uses twisted pair.
- a. 10Base5
 - b. 10Base2
 - c. 10BaseT
 - d. 10Base-FL

53) ... has a speed of 10Mbps, baseband transmission and can have a length up to 2Km.

- a. 10Base5
- b. 10Base2
- c. 10BaseT
- d. 10Base-FL

54) The maximum number of stations allowed on a segment of 10Base5 is ...

- a. 2.
- b. 100.
- c. 30.
- d. 50.

55) The maximum number of stations allowed on a segment of 10Base2 is ...

- a. 2.
- b. 100.
- c. 30.
- d. 50.

56) The maximum number of stations allowed on a segment of 10BaseT is ...

- a. 2.
- b. 100.
- c. 30.
- d. 50.

57) The maximum number of stations allowed on a segment of 10Base-FL is ...

- a. 2.
- b. 100.
- c. 30.
- d. 50.

A decorative graphic featuring three blue circles of varying sizes (large, medium, and small) arranged diagonally from the top right towards the bottom left. Two thin blue lines intersect to form a large 'V' shape that frames the circles. The circles are composed of concentric rings of different shades of blue, creating a 3D effect.

Computer Networks

Lab 6

Lab Contents:

- i. MCQ (Part 2)

Choose the best answer to each of the following statements:

- 1) At the ... layer of the OSI model, end devices must be connected by media (cables).
 - a. Physical
 - b. Data Link
 - c. Network
 - d. Transport
- 2) Use a ... cable to connect two workstations to each other through their NIC's Ethernet port.
 - a. console
 - b. straight-through
 - c. crossover
 - d. serial
- 3) Use a ... cable to connect the router's Ethernet port to a switch port or a workstation to a switch port.
 - a. console
 - b. straight-through
 - c. crossover
 - d. serial
- 4) The ... command is a computer network tool used to test whether a host (workstation, router, server, etc.) is reachable across an IP network.
 - a. Net state
 - b. Ping
 - c. Arp
 - d. Print
- 5) What could prevent a ping from being sent between two workstations when they are directly connected?
 - a. Both workstations have the same IP address
 - b. The correct type of cable is not used between the workstations
 - c. Both workstations have no IP addresses
 - d. All of the above
- 6) ARP Table: Address Resolution Protocol (ARP) table stores ...
 - a. pairings of IP Address and Ethernet MAC address of the host workstation
 - b. pairings of IP Addresses and Ethernet MAC addresses of all other workstations connected to host workstation

- c. pairings of IP Addresses and Ethernet MAC addresses of workstations that have previous communication with the host workstation
 - d. none of the above
- 7) Which OSI model layer is responsible for regulating the flow of information from source to destination, reliably and accurately?
- a. Application
 - b. Presentation
 - c. Session
 - d. Transport
 - e. Network
- 8) The operating system used in routers is ...
- a. Windows Vista.
 - b. Windows CE.
 - c. Linux.
 - d. IOS.
- 9) Routers are ... devices.
- a. 1-layer
 - b. 2-layer
 - c. 3-layer
 - d. 4-layer
- 10) The two main functions of routers are ...
- a. Select the best path for packets and to route packets to the proper interface.
 - b. Build routing tables and segment local area networks.
 - c. Connect end devices to each other and segment local area networks.
 - d. None of the above.
- 11) ... is used for routing table and it holds the running configuration in routers.
- a. NVRAM
 - b. RAM
 - c. FLASH
 - d. ROM
- 12) ... is used to store the backup/startup configuration file.
- a. NVRAM
 - b. RAM
 - c. FLASH
 - d. ROM

- 13) ... is used for storage of full Cisco IOS software images.
- a. NVRAM
 - b. RAM
 - c. FLASH
 - d. ROM
- 14) ... is used for permanently storing startup diagnostic code.
- a. NVRAM
 - b. RAM
 - c. FLASH
 - d. ROM
- 15) The ... provides physical access for initial configuration for Cisco router or switch.
- a. Consol port
 - b. LAN port
 - c. WAN port
 - d. None of the above.
- 16) ... holds ARP cache in routers.
- a. NVRAM
 - b. RAM
 - c. FLASH
 - d. ROM
- 17) When router starts up it ...
- a. Performs hardware check first.
 - b. Bootstrap loader in ROM executes first.
 - c. Operating system loads first.
 - d. Loads the configuration file first.
- (Q)** Write down the CLI commands to change a switch name to TEST and open port no.1
- 18) With TCP/IP data encapsulation, which range of port numbers identifies all well-known applications?
- a. 0 to 255
 - b. 256 to 1022
 - c. 0 to 1023
 - d. 1024 to 2047
 - e. 49153 to 65535

- 19) Why are port numbers included in the TCP header of a segment?
- a. to indicate the correct router interface that should be used to forward a segment
 - b. to identify which switch ports should receive or forward the segment
 - c. to determine which Layer 3 protocol should be used to encapsulate the data
 - d. to enable a receiving host to forward the data to the appropriate application
 - e. to allow the receiving host to assemble the packet in the proper order
- 20) Which two options represent Layer 4 addressing? (Choose two.)
- a. identifies the destination network
 - b. identifies source and destination hosts
 - c. identifies the communicating applications
 - d. identifies multiple conversations between the hosts
 - e. identifies the devices communicating over the local media
- 21) During a TCP communication session, if the packets arrive to the destination out of order, what will happen to the original message?
- a. The packets will not be delivered.
 - b. The packets will be retransmitted from the source.
 - c. The packets will be delivered and reassembled at the destination.
 - d. The packets will be delivered and not reassembled at the destination.