

Q1: The physical layer of the receiving device passes bits up to the: (Quiz2 & Test1)

- Application
- Transport
- Data link
- Network

Q2: What is one advantage of using fiber optic cabling rather than copper cabling?

- It is able to carry signals much farther than copper cables.
- It is easier to terminate and install than copper cabling.
- It is usually cheaper than copper cabling.
- It is able to be installed around sharp bends.

Q3: The function that is converting binary information into transmittable signals is OR What function is converting binary information into transmittable signals is (Test1 &)

- Routing
- Modulation
- Forwarding
- Multiplexing

Q4: which type of UTP cable is used to connect PC to switch port? (Quiz2 & Test1)

- Crossover cable
- Straight-through cable
- Console cable

Q5: Let's match the statements to the corresponding Fiber-optic cable type: (Quiz2 & Test1)
Multi-mode Fiber (MMF)

- use light emitting diodes (LEDs) as a data light source transmitter.
- can help data travel approximately 500 meters.
- is used within a campus network.

Single-mode Fiber (SMF)

- can travel approximately 100km.
- use lasers in a single stream as a data light source transmitter.
- is used to connect long distance telephony and cable TV applications.

Q6: Match wireless transmission standards to their typical application

- Wide network –
- Home networks and Small Office Home Office –
- Personal Area Networks (PANs) and allows devices to communicate over distances of 1 to 100 meters – .
- Industrial and IoT environments –

WiMAX

Bluetooth

WIFI

Zigbee

Q7: To modulate a baseband signal, changes can be made to the: (Test1) (Pick the correct answers)

- Phase
- Amplitude
- Frequency
- None of these

Q8: Match Base & Pass-band modulation. (Quiz2 &)

Base-band modulation:

NRZ (non return to Zero)

Manchester

Pass-band modulation:

QPSK (Quadrature Phase Shift Keying)

BPSK (Binary Phase shift keying)

FSK (Frequency shift keying)

ASK (Amplitude shift keying)

Q9: An image has a size of 3850 x 2160 pixels (4K) with true color, which means that 3 bytes per pixel are used for the color information. how long does it take to transmit the image via a 100Mbps ethernet connection?

$$3850 \times 2160 = 8,316,000$$

$$8,316,000 \times 3 = 24,948,000$$

$$24,948,000 \times 8 = 199,584,000$$

$$199,584,000 / 100,000,000 = 1.9958$$

Q10: which of the following devices are you most likely to find in the MDF?

- Routers
- network printers
- switches
- KVM switch

Q11: What components of the backbone run between a building's floors and can be used to connect an MDF and IDF or multiple IDFS?

- diagonal cabling
- vertical cross connect
- horizontal cross connect
- patch cable

Q12: The transmission mode between a keyboard and the central processing unit is: (Quiz2 & Test1)

- Half duplex
- Simplex
- full duplex

Q13: Why should you not leave more than 1 inch of exposed cable before a twisted pair termination? (Test1)

- The exposure of the cable can cause transmission interference between wires.
- The termination will fail over time due to oxidation

Q14: the transmission mode in Today's ethernet is:

- Full duplex
- Half duplex
- Simplex

Q15: Consider a transmission channel that operates at a frequency bandwidth B. A signal S transmitted through this channel experiences a noise N. What is the maximum capacity in bits per second of this channel?

- $B + \log_2(1+S/N)$
- $S - N$
- $B \times S/N$
- $B \times \log_2(1+S/N)$
- B

Q16: You need to connect a new network printer to a nearby wall jack. What kind of cable should you use?

- Plenum-rated cable
- Patch cable
- Fiber-optic cable
- Telephone cable

Q17: What PDU is received by the physical layer for encoding and transmission? (Quiz2 & Test1)

- Packet
- Segment
- Frame
- Datagram

Q18 which statements are correct regarding frequency? (Quiz2 & Test1) (Pick the correct answers)

- Frequency is the number of cycles per second of a waveform
- The unit of Frequency is milliseconds
- Frequency = $1/\text{Period}$. Where period is the duration of one cycle of a waveform
- Frequency is the length of a waveform

- The unit of frequency is Hertz

Q19: Which of the following is Not a best practice when performing cable management? (Quiz2 & Test1)

- A cable tester should be used to verify that each segment of cable is transmitting
- cable ties should be pulled tightly to keep cables from moving around in a bundles
- Cable should not be place across a floor where they might be damaged by traffic
- Grounding requirements should be followed when running cables

Q20: Which of the following physical layer technologies has the highest transmission rate and lowest bit error rate in practice? (Quiz2 & Test1 & MT)

- Satellite channel
- Twisted pairs (UTP, STP)
- Coaxial cable
- Fiber optic cable
- 802.11 WIFI channel

Q21: Which of these is a measure of the transfer of bits across the media? (Quiz2 & Test1)

- Bandwidth
- Throughput
- Goodput

Q22: The TCP and UDP protocols both exist at what layer of the OSI model? (Quiz2 & Test1 & MT)

- Network
- Application
- Transport
- Presentation

Q23: At which OSI layer does the IP operate? (Quiz2 & Test1)

- Data link layer
- Network layer
- Application layer
- transport layer

Q24: In the TCP/IP model, what layer combines the responsibilities of the application, presentation and session layers from the OSI model? (Quiz2 & Test1 & MT)

- Internet
- Application
- Transport
- Link

Q25: The Data Link Layer utilizes what name for its protocol data unit (PDU)? (Quiz2 & Test1)

- Bit

- Frame
- Packet
- Data

Q26: The frame header at the data link layer includes hardware addresses of the source and destination NICs. What is another name for this address? (Quiz2 & Test1)

- DAC (Digital access control) address
- MAC (Media access control) address
- DAC (Data access control) address)
- PAC (Packet access control) address

Q27: Match the name of an internet layer with unit of data that is exchanged among protocol entities at that layer, using the pulldown menu. (Quiz2 & Test1)

Application layer -

Transport layer -

Network layer -

Link layer -

Physical layer -

From

Message

Segment or datagram

Packet

Frame

Bit

Q28: Which of the following are disadvantages of peer to peer networks? (Quiz2 & MT) (Pick the correct answers)

- They centralize user account logins.
- They are impractical for connecting large numbers of computers
- They lack scalability
- They are not necessarily secure

Q29: What statements accurately reflects what occurs when a message is too large to transport on a network? (Quiz2 & Test1 & MT)

- The message is sent anyway, and is received by the destination as garbage data.
- The message is discarded and must be sent again.
- The message is divided into smaller messages called segments (for TCP) or datagrams (for UDP)
- An ICMP error is generated, and the application must reformat the data for transmission

Q30: The transmission mode in walkie-talkie is: (Quiz2 & Test1)

- Full duplex

- Half duplex
- Simplex

Q31: When planning horizontal cabling. What is the maximum allowable distance that can be used?

(Quiz2 & Test1)

- 100 cm
- 300 meters
- 1,000 meters
- 100 meters

Q32: What statement regarding main distribution frame or main distribution facilities is accurate?

(Quiz2 &)

- The MDF and entrance facility are always in separate rooms.
- The MDF provides intermediate connection between the IDF and end-user equipment on each floor.
- The MDF is the centralized point of interconnection for an organization's LAN or WAN.
- The MDF refers to the racks holding network equipment in an organization.

Q33: What does backbone cabling consist of? (Quiz2 & Test1)

- Short length cables with connectors at both ends
- The shielded cables that are used for high data transmission rates organization and an ISP
- The cables or wireless links that provide interconnection between facility and MDF, and between the MDF and IDFs.
- It is cabling that connects workstations to the closest data room and housed in the room

Q34: What standard describes uniform, enterprise-wide cabling systems, regardless of who manufactures or sells the various parts used in the system? (Quiz2 & Test1)

- ISO 9001
- TIA/EIA-568
- ITU 922
- IEEE 802.3

Q35: Where is a demarc located in relation to the structured cabling of an enterprise environment?

(Quiz2 & Test1)

- In the work area
- In the Main Distribution Frame (MDF)
- Between the MDF and the IDF
- At the Intermediate Distribution Frame (IDF)

Q36: What is the maximum throughput achievable between sender and receiver in the scenario shown below?

Sender > link capacity: 1.5 Mbits/sec > Router > link capacity: 10 Mbits/sec > receiver

- 15 Mbps
- 1.5 Mbps
- 10 Mbps
- 11.5 Mbps

Q37: Check all of the services below that are provided by the TCP protocol.

(Pick the correct answers)

- A congestion control service to ensure that multiple senders do not overload network links.
- In-order data delivery
- A flow-control service that ensures that a sender will not send at such a high rate so as to overflow receiving host buffers.
- Reliable data delivery.
- A guarantee on the minimum amount of throughput that will be provided between sender and receiver.
- A guarantee on the maximum amount of time needed to deliver data from sender to receiver.

Q38: A high speed transmission line operates at 1200 bits per second. How many low speed lines operating at 400 bits per second could be multiplexed (TDM) into the high speed line? (Quiz2 & Test1)

$$1200/400 = 3$$

Q39: At what layer of the OSI model does a network switch normally operate? (Quiz2 & Test1)

- Layer 3
- Layer 5
- Layer 2
- Layer 4

Q40: In considering the responsibilities of each layer of the OSI model, what statement accurately reflects those of the Presentation layer? (Quiz2 & Test1 & MT)

- The Presentation layer is responsible for describing how data between applications is synced and recovered if messages don't arrive intact at the receiving application.
- The Presentation layer is responsible for transporting Application layer payloads from one application to another.
- The Presentation layer describes the interface between two applications, each on separate computers.
- The Presentation layer is responsible for reformatting, compressing, and/or encrypting data in a way that the application on the receiving end can read.

Q41: The transport layer header addresses a receiving application by a number called MAC address

True or False

Q42: The physical layer is only concerned with wired network connections.

True or false

Q43: The data link layer attaches a trailer to the end of a packet, and does not include a header.

True or false

Q44: Which of these is the name for the capacity of a medium to carry data?

- Bandwidth
- Throughput
- Goodput

Q45: Which of the following attaches antennas to wireless devices? It can also be bundled with fiberoptic cabling for broadband cable Internet access. (Quiz2 & Test1)

- UTP
- STP
- Coaxial

Q46: Which of the following counters EMI and RFI by using shielding techniques.

- UTP
- STP
- Coaxial

Q47: Which of the following is the most common network media?

- UTP
- STP
- Coaxial

Q48: Wireless LANs operate in full-duplex allowing all devices to send or receive data at the same time so the number of users does not impact performance.

True or false

Q49: What type of cable is used to connect a workstation serial port to a Cisco router console port

- Coaxial
- Crossover
- Rollover
- Straight-through

Q50: Why are two strands of fiber used for a single fiber optic connection?

- They allow full-duplex connectivity
- They increase the speed at which data can travel
- They prevent crosstalk from causing interference on the connection

- They allow the data to travel longer distances without degrading

Q51: Which characteristic describes crosstalk?

- The distortion of the signal from fluorescent lighting
- Weakening of the signal over long cable lengths
- Distortion of transmitted message from signals carried in adjacent wires
- Loss of wireless signal over excessive distance from the access point.

Q52: Which of the following is the name for all computers connected to a network that participate directly in network communication?

- Servers
- Intermediary devices
- Hosts
- Media

Q53: Which connection physically connects the end device to the network?

- Port
- NIC
- Interface

Q54: Which device performs the function of determining the path that messages should take through internetworks?

- Router
- Firewall
- DSL modem
- Web server

Q55: Which of the definitions below describes what is meant by the term "encapsulation"?

- Determining the name of the destination host, translating that name to an IP address and then placing that value in a packet header field.
- Receiving a "packet" from the layer below, extracting the payload field, and after some internal actions possibly delivering that payload to an upper layer protocol.
- Starting a transport layer timer for a transmitted segment, and then if an ACK segment isn't received before the timeout, placing that segment in a retransmission queue
- Computing the sum of all of the bytes within a packet and placing that value in the packet header field.
- Taking data from the layer above, adding header fields appropriate for this layer, and then placing the data in the payload field of the "packet" for that layer.

Q56: When we say that the Internet is a "network of networks," we mean? (Pick the correct answers) (hint: check two or more).

- The Internet is the fastest network ever built.
- The Internet is made up of a lot of different networks that are interconnected to each other.

- The Internet is the largest network ever built.
- The Internet is made up of access networks at the edge, tier-1 networks at the core, and interconnected regional and content provider networks as well.

Q57: What is assigned to each node on a network, which is then used by the network layer to uniquely identify the node?

- MAC address
- Autonomous system address
- IP address
- Port address

Q58: Which type of address is used at the Transport layer to identify the receiving application? (Quiz2 & Test1 & MT)

- MAC address
- Port
- IP address
- Protocol

Q59: What type of tool would you utilize to terminate pair wire on RJ45 (Quiz2 & Test1)

- Wire crimper
- Wire tester
- Wire cutter
- Wire stripper

Q60: Which of the following is an example of encapsulation? (Quiz2 & 1 & MT)

- The addition of a trailer to data inherited from the layer above in the OSI model.
- The modification of headers from a higher layer in the OSI model.
- The addition of a header to data inherited from the layer above in the OSI model.
- The subtraction of a header from data inherited from the layer below in the OSI model.

Q61: What statement regarding main distribution frame or main distribution facilities is accurate? (Test1 &)

- The MDF and entrance facility are always in separate rooms.
- The MDF provides intermediate connection between the IDF and end-user equipment on each floor.
- The MDF refers to the racks holding network equipment in an organization.
- The MDF is the centralized point of interconnection for an organization's LAN or WAN.

Q62: Choose one of the following two definitions that makes the correct distinction between routing versus forwarding (Test1 &)

- Routing is the local action of moving arriving packets from routers and input link to appropriate router output link, while forwarding is the global action of determining the source destination path taken by packets.

- Forwarding is the local action of moving arriving packets from router input link to appropriate router output link, while routing is the global action of determining the source destination path taken by packets.

Q63: During termination of twisted pair cabling, what should be done to ensure minimal cross talk is introduced? (Test1&)

- No more than 1 inch of the cable should be exposed.
- Each pair should be twisted around another pair to reduce cross talk.
- No less than 1 inch of the cable should be exposed.
- Each pair should be stripped of insulation so that it doesn't get caught in the jack.

Q64: Which of the following describes correspond a definition of the Internet? (Pick the correct answers). (Test1&)

- A collection of hardware and software components executing protocols that define the format and the order of messages exchanged between two or more communicating entities, as well as the action taken on the transmission and/or receipt of a message of other event.
- A set of devices that I use every day like a smartwatch, connected car, connected glasses.
- Google and social media
- A "network work of networks".
- A collection of billions of computing devices and packet switches interconnected by links.

Q65: A hacker announces that its MAC address is bound to the Gateway's IP address. What is the type of this attack? (MT&)

- TCP Spoofing
- IP Spoofing
- Phishing
- ARP Spoofing

Q66: What is an attack using ARP? (MT&)

- IP spoofing
- ARP poisoning
- ARP broadcasts
- ARP starvation

Q67: What identifier is used at the data link layer to uniquely identify an Ethernet device (MT&)

- IP address
- MAC Address
- UDP port number
- TCP port number
- Sequence number

Q68: Which of these is a link layer address? (MT&)

- 0f:2a:b3:1f:b3:1a
- @drchuck

- www.khanacademy.com
- 192.168.3.14

Q69: What occurs if a network layer protocol is aware that a packet is larger than the maximum size for its network? (MT&)

- The packet will be dropped silently, requiring the communicating application try again.
- The protocol will notify a network router capable of receiving the packet, and a new path will be used to the destination.
- The protocol will send an IMP message to the destination, requesting a larger packet size be allowed.
- The packet will be divided into smaller packets using fragmentation.

Q70: Which part of MAC address is unique to each manufacturer? (MT&)

- The physical address
- The network identifier
- The OUI
- The device identifier

Q71: Data link layer is responsible for? (Pick the correct answers) (MT&)

- To start and stop traffic over the media.
- Ensure messages are delivered to the proper device on a LAN using hardware addresses.
- To establish logical connection between nodes.
- Responsible for the exchange of frame between nodes over a physical network.

Q72: in the command prompt of your computer you typed:

Ping www.yahoo.com , Then you typed arp -a and noticed the new entry marked with a red cross below (MT&)

Select the right statement: -

- The MAC address 08-c0-21-ce-e5-f6 belongs to yahoo's server NIC.
- None of these answers is correct.
- The MAC address 08-c0-21-ce-e5-f6 belongs to your computer's NIC.
- The MAC address 08-c0-21-ce-e5-f6 belongs to the default gateway's NIC.

Q73: Match the statements to the corresponding multiplexing technique. (MT)

- different users use the whole available frequency band at different slots.
- different users use different band of colors from the whole available frequency band.
- different users use a different narrow band of the whole available frequency band.

To

(Time Division Multiplexing)

(Frequency Division Multiplexing)

Q74: What is error control in Data link layer of OS1 model? (MT)

- Controlled erroneous packet transmission with encryption.
- None
- Retransmission of erroneous packets
- Transmission of erroneous packets.

Q75: What command can you utilize to display TCP/IP configuration information for each network adapter installed? (MT)

- Ipconfig /all
- ipconfig /show
- ipconfig /list
- ipconfig /full.

Q76: How can you determine the manufacturer of a NIC card based on the MAC address? (MT)

- The first 24 bits, known as the Organizationally Unique Identifier, identify the manufacturer.
- The first 12 bits and last 12bits combined are known as the Organizationally Unique identifier.
- The middle 24bits known as the Organizationally Unique identifier, identify the manufacturer.
- The last 24bits, known as the Organizationally Unique identifier, identify the manufacturer.

Q77: Match the type of address to the layer where it is considered (Quiz1&Test1&MT)

- Specific addresses like Domain Names è Application Layer
- Ports è Transport Layer
- IP è Network Layer
- MAC è Access Layer (Link + Physical)

Q78: Match the media with the type of signals it uses to represent bits (Quiz1&Test1&MT)

- Electrical èCopper
- Microwave è Wireless
- Light è Fiber

Q79: Which is a function of the Logical Link Control (LLC) sublayer? (MT)

- To define the media access processes that are performed by the hardware.
- To accept segments and package them into data units that are called packets.
- To provide data link layer addressing.
- To identify which network layer protocol is being used.

Q80: Which protocol's header would a Layer 4 device read and process? (MT)

- IP
- TCP
- ARP

- HTTP

Q81: Which statement is true about ARP? (MT)

- An ARP cache cannot be manually deleted.
- ARP entries are cached temporarily.
- ARP entries are cached permanently.

Q82: A network consists of seven computers and network printer, all connected directly to one switch. Which network topology does this network use? (Quiz2 & Test1)

- Star
- Extended - Star
- Mesh

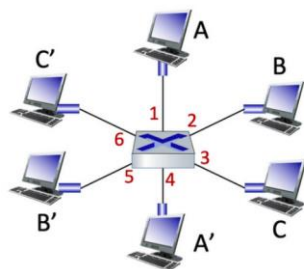
Q83: What statement accurately reflects what occurs when a message is too large to transport on a network?

- The message is sent anyway, and is received by the destination as garbage data.
- The message is discarded and must be sent again.
- An ICMP error is generated, and the application must reformat the data for transmission.
- The message is divided into smaller messages called segments (for TCP) or datagrams (for UDP)

Q84: Suppose an Ethernet frame arrives to an Ethernet switch, and the Ethernet switch does not know which of its switch ports leads to the node with the given destination MAC address? In this case, what does the switch do?

- Flood the frame on all ports except the port on which the frame arrived.
- Use the address resolution protocol (ARP) to determine the appropriate outgoing port.
- Drop the frame without forwarding it.
- Choose a port randomly and forward the frame there.

Q85: Consider the simple star-connected Ethernet LAN shown below, and suppose the Ethernet switch is a learning switch, and that the switch table is initially empty. Suppose C sends an Ethernet frame address to C' and C ' replies back to C. How many of these two frames are also received at B's interface?



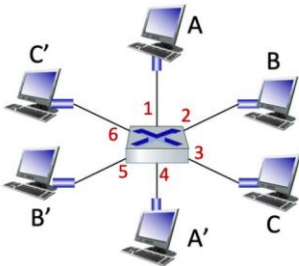
- 0
- 2
- 1

- 4

Q86: Which of the following statements are true about MAC (link-layer) addresses? Select one or more statements below.

- Has 48 bits.
- Generally does not change, and is associated with a device when it is manufactured/created.
- Generally stays unchanged as a device moves from one network to another.
- Has 32 bits.
- A portion of the address bits are associated with the network to which the device is attached, and so changes as the device moves from one network to another.

Q87: Consider the simple star-connected Ethernet LAN shown below, and suppose the switch table contains entries for each of the 6 hosts. How will those entries be removed from the switch table?



- A table entry for a host will be removed by the STPP (Switch Table Purge Protocol) which will be used by a host to signal the switch when it (the host) is shutting down or otherwise leaving the network.
- The table entry can only be removed by the network manager, who would use the SNMP protocol to remove the entry.
- They'll remain in the switch forever (or until it is re-booted).
- An entry for a host will be removed if that host doesn't transmit any frames for a certain amount of time (that is, table entries will timeout).

Q88: What identifier is used at the data link layer to uniquely identify an Ethernet device?

- TCP Port number
- MAC address
- sequence number
- IP address
- UDP port number

Q89: What method is used to manage contention-based access on a wireless network?

- CSMA/CA
- Token passing
- CSMA/CD
- Priority ordering

Q90: A technician has been asked to develop a physical topology for a network that provides a high level of redundancy. Which physical topology requires that every node is attached to every other node on the network?

- Mesh
- Bus
- Ring
- Star
- Hierarchical

Q91: What are the two sublayers of the OSI model data link layer? (Choose two.)

- MAC
- Internet
- Transport
- LLC
- Physical

Q92: What type of physical topology can be created by connecting all Ethernet cables to a central device?

- Mesh
- Bus
- Star
- Ring

Q93: What are two services performed by the data link layer of the OSI model? (Choose two.)

- It determines the path to forward packets
- It accepts Layer 3 packets and encapsulates them into frames
- It provides media access control and performs error detection
- It fragments data packets into the MTU size
- It monitors Layer 2 communication by building a MAC address table

Q94: Although CSMA/CD is still a feature of Ethernet, why is it no longer necessary?

- the use of CSMA/CA
- the use of full-duplex capable layer 2 switches
- the development of half-duplex switch operation
- the virtually unlimited availability of IPv6 addresses
- the use of Gigabit Ethernet speeds

Q95: Which two characteristics describe Ethernet technology? (Choose two.)

- It is supported by IEEE 802.5 standards
- It specifically uses an average of 16Mbps for data transfer rates
- It uses unique MAC addresses to ensure that data is sent to the appropriate destination.
- It uses a ring topology
- It is supported by IEEE 802.3 standards

Q96: What will a host on an Ethernet network do if it receives a frame with a unicast destination MAC address that does not match its own MAC address?

- it will discard the frame
- It will decapsulate the frame to check the destination IP address
- It will remove the frame from the media
- It will forward the frame to next host

Q97: Which network device makes forwarding decisions based on the destination MAC address that is contained in the frame?

- router
- switch
- hub
- Repeater

Q98: What addressing information is recorded by a switch to build its MAC address table?

- the destination layer 3 address of incoming packets
- the source layer 3 address of the outgoing packets
- the destination layer 2 address of outgoing frames
- the source layer 2 address of incoming frames

Q99: What type of address is FF-FF-FF-FF-FF-FF

- an address that reaches one specific host
- an address that reaches a specific group of hosts
- an address that reaches every host inside a local subnet

Q100: Which statement is true about MAC addresses?

- MAC addresses are implemented by software
- The ISO is responsible for MAC addresses regulations
- A NIC only needs a MAC address if connected to a WAN
- The first three bytes are used by the vendor assigned OUI

Q101: What are the two sizes (minimum and expected maximum) of an Ethernet frame?
(Choose two.)

- 1518 bytes
- 128 bytes
- 1024 bytes
- 64 bytes
- 56 bytes

Q102: What two functions are provided by ARP? (Choose two.)

- Maintains a table of IPv4 addresses to domain names
- Maintains a table of IPv4 to MAC address mappings
- Maintains a table of IPv6 to MAC address mappings
- Resolves IPv4 addresses to domain names
- Resolves IPv4 addresses to MAC addresses

Q103: which OSI layer is responsible for routing traffic from one LAN to another?

- network layer

- transport layer
- data link layer
- physical layer

Q104: What command displays the ARP table?

- arp -a
- arp -t
- arp -d

Q105: What part of a MAC address serves as the extension identifier, or device ID?

- The last 12 bits of the MAC address
- The first 12 bits of the MAC address
- The first 24 bits of the MAC address
- The last 24 bits of the MAC address

Q106: IEEE 802 model divides the data link layer into which upper sublayer and which lower sublayer?

- HDLC, PDU
- LLC, MAC
- PDU, HDLC
- MAC, LLC

Q107: How many bytes are there in a MAC address?

- 6
- 8
- 12
- 48

Q108: Which of the following services may be implemented in a link-layer protocol? (Pick the correct answers). (MT&)

- Flow control between directly connected nodes.
- End-end path determination through multiple IP routers.
- Coordinated access to a shared physical medium.
- Bit-level error detection and correction.
- Reliable data transfer between directly connected nodes.