100-101

CCNA Interconnecting Cisco Networking Devices 1 (ICND1)

DEMO

Topic 1, Operation of IP Data Networks

QUESTION NO: 1

Which three statements are true about the operation of a full-duplex Ethernet network? (Choose three.)

A. There are no collisions in full-duplex mode.
B. A dedicated switch port is required for each full-duplex node.
C. Ethernet hub ports are preconfigured for full-duplex mode.
D. In a full-duplex environment, the host network card must check for the availability of the network media before transmitting.
E. The host network card and the switch port must be capable of operating in full-duplex mode.
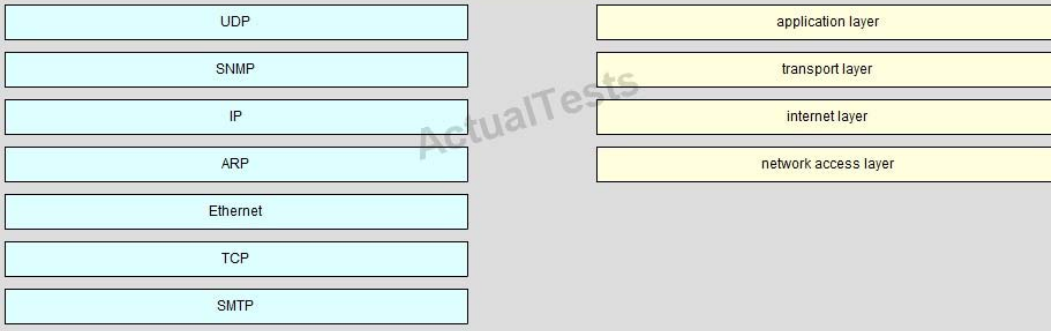
Answer: A,B,E

Explanation:

Half-duplex Ethernet is defined in the original 802.3 Ethernet and Cisco says you only use one wire pair with a digital signal running in both directions on the wire. It also uses the CSMA/CD protocol to help prevent collisions and to permit retransmitting if a collision does occur. If a hub is attached to a switch, it must operate in half-duplex mode because the end stations must be able to detect collisions. Half-duplex Ethernet—typically 10BaseT—is only about 30 to 40 percent efficient as Cisco sees it, because a large 10BaseT network will usually only give you 3- to 4Mbps—at most.

Full-duplex Ethernet uses two pairs of wires, instead of one wire pair like half duplex. Also, full duplex uses a point-to-point connection between the transmitter of the transmitting device and the receiver of the receiving device, which means that with full-duplex data transfer, you get a faster data transfer compared to half duplex. And because the transmitted data is sent on a different set of wires than the received data, no collisions occur. The reason you don't need to worry about collisions is because now Full-duplex Ethernet is like a freeway with multiple lanes instead of the single-lane road provided by half duplex. Full-duplex Ethernet is supposed to offer 100 percent efficiency in both directions; this means you can get 20Mbps with a 10Mbps Ethernet running full duplex, or 200Mbps for FastEthernet.

QUESTION NO: 2 DRAG DROP

On the left are various network protocols. On the right are the layers of the TCP/IP model. Assuming a reliable connection is required, move the protocols on the left to the TCP/IP layers on the right to show the proper encapsulation for an email message sent by a host on a LAN. (Not all options are used.)	
UDP	application layer
SNMP	transport layer
IP	internet layer
ARP	network access layer
Ethernet	
TCP	
SMTP	

Answer:

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UDP	SMTP
SNMP	TCP
IP	IP
ARP	Ethernet
Ethernet	
TCP	
SMTP	

Explanation:

SMTP
TCP
IP
Ethernet
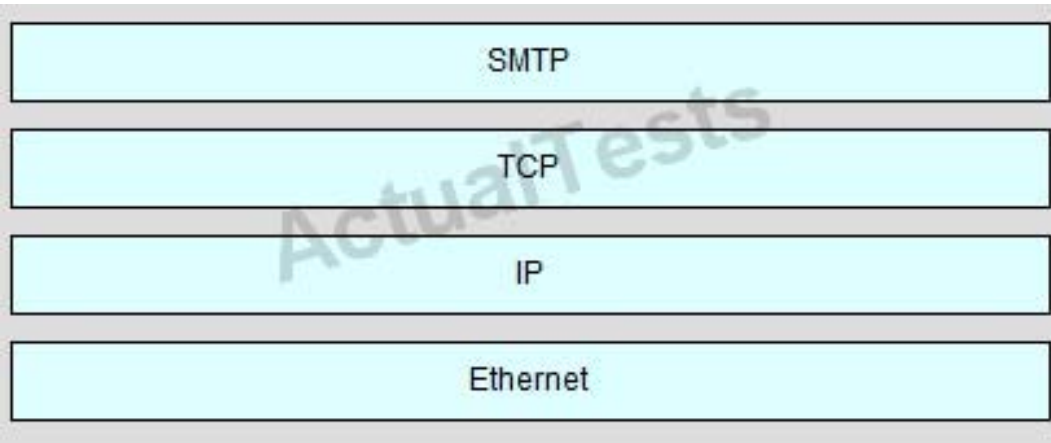
QUESTION NO: 3

Which OSI layer header contains the address of a destination host that is on another network?
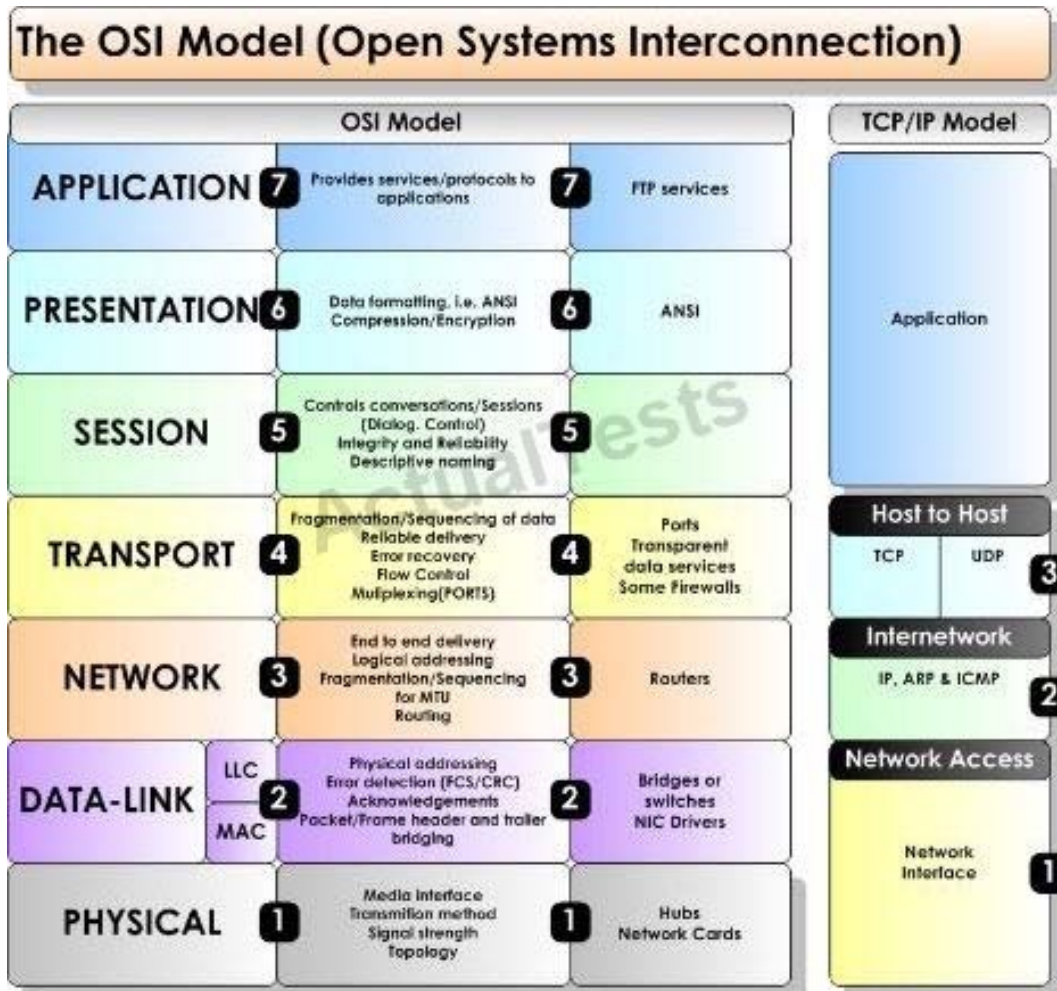
A. application

B. session

C. transport

D. network

E. data link

F. physical

Answer: D

Explanation: Explanation/Reference:

Only network address contains this information. To transmit the packets the sender uses network address and datalink address. But the layer 2 address represents just the address of the next hop device on the way to the sender. It is changed on each hop. Network address remains the same.

The OSI Model (Open Systems Interconnection)

OSI Model			TCP/IP Model
APPLICATION 7	Provides services/protocols to applications	7 FTP services	Application
PRESENTATION 6	Data formatting. i.e. ANSI Compression/Encryption	6 ANSI	
SESSION 5	Controls conversations/Sessions (Dialog. Control) Integrity and Reliability Descriptive naming	5	
TRANSPORT 4	Fragmentation/Sequencing of data Reliable delivery Error recovery Flow Control Multiplexing(PORTS)	4 Ports Transparent data services Some Firewalls	**Host to Host** TCP UDP 3
NETWORK 3	End to end delivery Logical addressing Fragmentation/Sequencing for MTU Routing	3 Routers	**Internetwork** IP, ARP & ICMP 2
DATA-LINK LLC 2 MAC	Physical addressing Error detection (FCS/CRC) Acknowledgements Packet/Frame header and trailer bridging	2 Bridges or switches NIC Drivers	**Network Access** Network Interface 1
PHYSICAL 1	Media Interface Transmition method Signal strength Topology	1 Hubs Network Cards	

QUESTION NO: 4

Which layer of the TCP/IP stack combines the OSI model physical and data link layers?

A. Internet layer