

Networking Technologies

50-632

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Question 1.

Which two IP address criteria are required for Supernetting? (Choose two)

- A. Addresses must be consecutive
- B. The addresses must be Class B
- C. The subnetmask must contain at least 20 bits
- D. The third octet of the first address must be evenly divisible by 2
- E. The third octet of the first address must be evenly divisible by 23

Answer: A, D

Explanation:

Supernetting is a way to aggregate multiple Internet addresses of the same class. Minimum two IP consecutive networks are required for this process. For example using supernetting, the network address **192.168.2.0/24** (third octet is divisible by zero) and an adjacent address 192.168.3.0/24 can be merged into 192.168.2.0/23.

Question 2.

Which elements form an IPX address used for internetwork communication? (Choose Three)

- A. Subnet mask
- B. Node address
- C. Socket number
- D. Network address

Answer: B, C, D

Explanation:

Node address (MAC), socket number and network address are used for IPX internetwork communication.

Subnet mask is used in IP networks.

Question 3.

What is the maximum segment length allowed in a 100BASE-TX LAN?

- A. 100 meters
- B. 412 meters
- C. 1000 meters
- D. 10,000 meters

Answer: A

Explanation:

100Base-TX operates at a 100 maximum segment length of twisted pair cable.

Question 4.

How is a routing path discovered in a source-routing network?

- A. Each bridge sends an XID packet around the rings to which it is connected. The XID packet collects each MAC address on the ring and the bridge uses this information to build a routing table.
- B. The bridge build routing oaths by recording the sending address of every frame they receive. By matching the sending address of a frame to the network segment the frame arrived on, the bridges generate a routing table.

- C. The bridges broadcast hello frames to the network segments to which they are attached. Each bridge builds a filtering table based upon the sending addresses in the reply frames. The bridges then exchange this information to build network-wide routing paths.
- D. The sending station transmits a hello frame addressed to the receiving station. The hello frame collects routing information as it travels from ring to ring. When the receiving station responds to the sending station, it includes the routing information from the hello frame.

Answer: B

Explanation:

Some routing algorithms assume that the source end-node will determine the entire route. This is usually referred to as *source routing*. In source-routing systems, bridges merely act as store-and-forward devices, mindlessly sending the packet to the next stop.

Question 5.

Exhibit

A network uses a four-bit subnet mask. It will reserve subnets of all "0's" and all "1's". What is the maximum number of available subnets?

Binary	1	1	1	1	1	1	1	1
Decimal	128	64	32	16	8	4	2	1

Answer: 14

Explanation:

A four bit subnet mask will produce $2^4=16-2=14$ number of subnets while reserving all 0 and all 1's network.

Question 6.

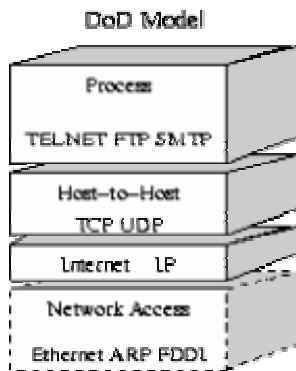
Which two components of the TCP/IP protocol suite map to the Host-to-Host layer of the DOD model? (Choose two)

- A. IP
- B. TCP
- C. FTP
- D. NFS
- E. UDP
- F. ARP

Answer: B, E

Explanation:

TCP and UDP maps to the host-to-host layer of the DOD model.



Question 7.

Which subnet mask designates a Class B network address with a 6 bit subnet?

- A. 255.255.252.0
- B. 255.255.224.0
- C. 255.255.248.0
- D. 255.255.240.0
- E. 255.255.255.0

Answer: A

Explanation:

The default subnet mask for class B network is 255.255.0.0. With six bit addition in the third octet, It will become 255.255.252.0

It will be calculated as below.

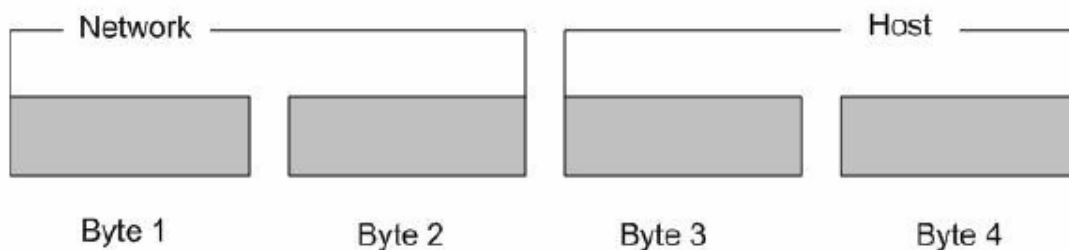
$$128+64+32+16+8+4=252$$

Binary	1	1	1	1	1	1	1	1
Decimal	128	64	32	16	8	4	2	1

Question 8.

Exhibit

What class of IPv4 address is illustrated in the exhibit?



Answer: Class B

Explanation:

Class B network use 2 bytes for the network address.

Question 9.

Why is IPv6 critical to the future of the Internet?

- A. The internet will run out of IPv4 addresses
- B. IPv6 provides connection oriented, reliable communication
- C. IPv6 requires less bandwidth than current internet protocols
- D. IPv6 provides superior address resolution capabilities compared to current solutions

Answer: A

Explanation:

IPv4 addresses are going to extinct in the future, therefore, IPV6 is the critical for future of Internet.

Question 10.

Perform the Drag-and-Drop task as outlined in the text below. Begin the Drag-and-Drop button. To finish this item and move on, click the Next button. Place the components of the X.500 directory structure in the proper hierarchical order.

X.500 Directory Labels	X.500 Directory Hierarchical Structure	Select these
Organizational Unit	<i>Place here</i>	Label 1
Common Name	<i>Place here</i>	Label 2
Root	<i>Place here</i>	Label 3
Organisation	<i>Place here</i>	Label 4
Country	<i>Place here</i>	Label 5

Answer:

X.500 Directory Labels	X.500 Directory Hierarchical Structure	Select these
Organizational Unit	Label 4	
Common Name	Label 5	
Root	Label 1	
Organisation	Label 3	
Country	Label 2	

Reference: RFC1309

Question 11.

Full-duplex gives you the ability to send and receive data at the same time. Which of the following Ethernet standards can operate in full-duplex mode? (Choose two.)

- A. 10Base2
- B. 10Base5
- C. 10BaseT
- D. 100BaseT

Answer: C & D

Explanation:

In order for full duplex transmissions to be supported the “cable” requires a means by which to receive and send transmissions at the same time. This is achieved through the use of twisted pairs. Both 10BaseT and 100BaseT utilize twisted pairs.

Option A, B:

Coaxial cable, either Thicknet (10Base5) or Thinnet (10Base2) only support one single transmission. If there is more than one transmission then a collision will occur.

Question 12.

What is the network address for a host with the IP address 123.200.8.68/28?

- A. 123.200.8.0
- B. 1231.200.8.32
- C. 123.200.8.64
- D. 123.200.8.65
- E. 123.200.8.31
- F. 123.200.8.1

Answer: C

Explanation:

In a network with 28 network bits only the last four bits are used for the hosts. We write the 4th octet in binary:

68 decimal = 01000100 binary (64+4)

We have to clear all host bits:

01000000 binary = 64 decimal

The network part is 123.200.8.64.

Option A:

For the network to be represented as 123.200.8 then the IP address would need a /24 at the end. In this case /28 was used.

Option B, D, E, and F:

In these cases with the IP address provided these options are impossible.

Question 13.

What are the advantages of using the OSI layered network model? (Choose three.)

- A. Allows multiple-vendor development through standardization of network components.
- B. Creates a list of communication rules that all companies must implement to get onto the Internet.
- C. Allows various types of network hardware and software to communicate.

- D. Prevents changes in one layer from affecting other layers, so it does not hamper development.
- E. Allows companies to develop proprietary interfaces.

Answer: A, C & D

Explanation:

The OSI model promotes standardization.

The layered approach allows various types of network hardware and software to communicate.

Each layer should be a separate black box. A change in one layer would not impact other layers.

Option B:

The OSI model does not contain standardization of applications in this way.

Option E:

Proprietary interfaces do not fit within the OSI model.

Question 14.

You just finished installing a new operating system on a computer located in the accounting department.

You would like to verify the network configuration from the new computer so you establish FTP connection to a remote TFTP server. Which layer of the OSI model did you use for this operation?

- A. Application
- B. Presentation
- C. Session
- D. Transport
- E. Data link
- F. Internet

Answer: A

Explanation:

The Application layer is the layer at which users use protocols to achieve access to the network. Using FTP to connect to a TFTP server is an excellent example.

Option B:

The presentation layer is focused on ensuring that data is readable once it has crossed the network.

Option C:

The session layer of the OSI model is responsible for communication. That is, the establishment, management, and ending of communication.

Option D.

The transport layer is focused on providing the establishment guidelines of communication.

Option E:

The data link layer provides the details on where the data is coming from and where it is going.

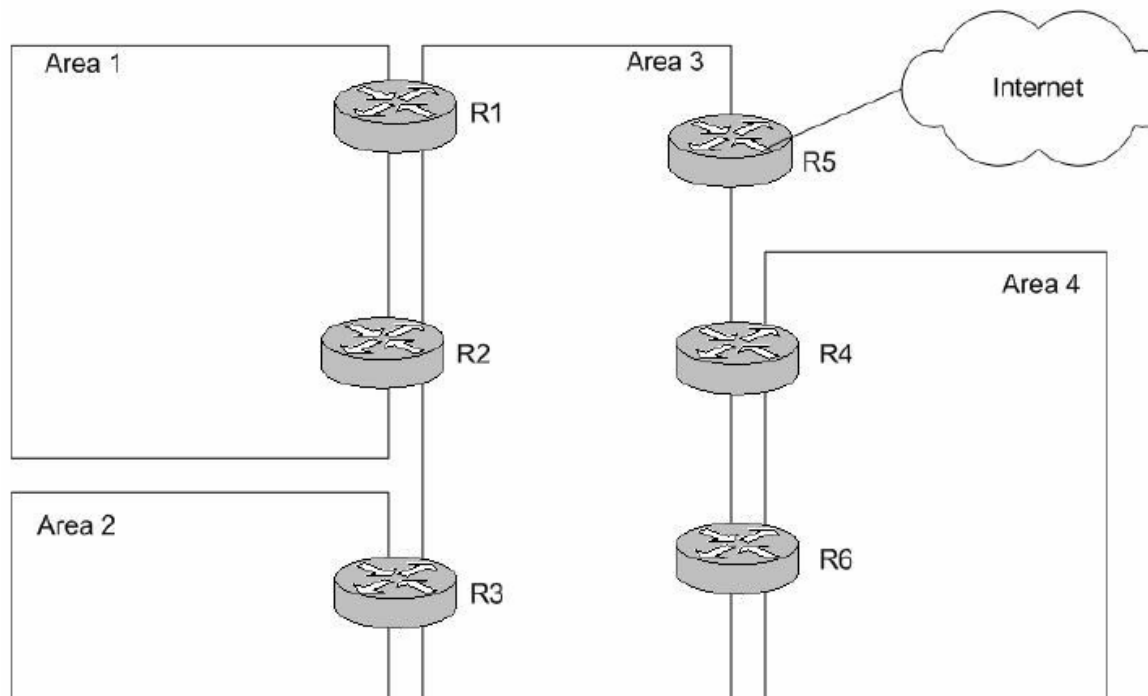
Option F:

The internet layer is not a layer of the OSI Model. It is a layer in the TCP/IP model that corresponds to the network layer of the OSI model.

Question 15.

Exhibit

Give that the internetwork in the exhibit uses OSPF routing, what router is the ASBR?



- A. R1
- B. R2
- C. R3
- D. R4
- E. R5
- F. R6

Answer: E

Explanation:

Inter-area routes refer to updates that are passed between areas. External routes refer to updates passed from another routing protocol into the OSPF domain by the Autonomous System Border Router (ASBR).

Question 16.

What are benefits of bridging (Choose two.)

- A. To reduce broadcasts within collisions domains.
- B. To reduce collisions within broadcasts domain.
- C. To increase the number of broadcasts domains.
- D. To increase the broadcasts within collisions domains.
- E. To increase the number of collision domains.
- F. To increase the efficiency of routing.

Answer: B & E

Explanation:

Bridging reduces the scope of the collision domains. The collision domains are contained within the broadcast domains.

Bridging increases the number of collision domains.

Option A:

As all devices connected to the same bridge are in the same broadcast domain, all broadcasts are forward to all collisions domains. Therefore broadcasts are not reduced.

Option C:

Bridges do not affect the number of broadcast domains.

Option D:

Bridges neither increase nor decrease the broadcasts within a collision domain.

Option F:

Bridges do not necessarily increase the efficiency of routing.

Question 17.

Assuming a default subnet mask which two pieces of information can be derived from the IP address 131.107.2.200? (Choose Two)

- A. It is a Class C address
- B. It is a Class B address
- C. The network address is 131.0.0.0
- D. The network address is 131.107.2.0
- E. The host portion of the address is 2.200

Answer: B & E

Explanation:

This is a class B address. 128-191 is the range for the first octet in a class B range. The subnet mask is 16-bit.

Option A:

This is a class B address

Option C and D:

The network address is 131.107

Question 18.

At Layer 2 of the OSI model, which component connects a host to the network media?

- A. Hub
- B. Switch
- C. Bridge
- D. NIC
- E. Transceiver

Answer: D

Explanation:

The data link layer is layer 2 of the OSI model. The data link layer involves frames and uses the burned in MAC addresses that NIC cards and router interfaces have.

Option A:

A hub operates at the physical layer, layer 1.

Option C:

Bridges operate the Data Link layer, layer 2, of the OSI model. However, they are used to connect network segments, not to connect hosts to the network media.

Option B:

Bridges operate the Data Link layer, layer 2, of the OSI model. However, they are not used to connect hosts to the network media.

Option E:

A transceiver works at the physical layer, layer 1.

Question 19.

Identify three valid host addresses in the 192.168.27.0 network with a subnet mask of 255.255.255.240. (Choose three)

- A. 192.168.27.33
- B. 192.168.27.112
- C. 192.168.27.119
- D. 192.168.27.126
- E. 192.168.27.175
- F. 192.168.27.208

Answer: A, C & D

Explanation:

A subnet mask of 255.255.255.240 divides the 4th octet into a subnet parts: the highest four bits, and a host part: the lowest four bits. We simply check the 4th octet to check that all subnet and host parts are ok.

i.e that cannot be: 0000 or 1111

33 decimal is 00100001. Both the subnet and the host part are ok.

119 decimal is 01110111. Both the subnet and the host part are ok.

126 decimal is 1111110. Both the subnet and the host part are ok.

Option B:

112 decimal is 1110000 binary. This is not a valid host address in this network. It has all host bits 0.

Option E:

175 decimal is 10101111. All host bits are 1's. This is the local broadcast address and cannot be used as a host address.

Option F:

208 decimal is 11010000 binary. This is not a valid host address in this network. It has all host bits 0.

Question 20.

How many valid host IP addresses are available on the following network/subnetwork?

131.107.10.16/30

- A. 2
- B. 30

- C. 254
- D. 16,382
- E. 65,534

Answer: A

Explanation:

This is a CIDR problem, also called supernetting. When you see the /xx notation, the xx is the consecutive number of one bits in the subnet mask. In this case, /30 = 30, and is also a subnet mask of 255.255.255.252. This leaves 2 bits (4 hosts) for host addressing, however since we reserve 2 addresses, that leaves a net of 2 Host Addresses, max.