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Interconnecting Cisco Networking Devices Exam (ICND®)

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Total number of questions: 445

Topic 1, Planning and Designing (88 questions)

Section 1, Design or modify a simple LAN using Cisco products (17 questions)

QUESTION NO: 1

The Exam-zoneA router is configured as shown below:

```
Exam-zoneA(config)# interface loopback 0  
Exam-zoneA(config-if)# ip address 192.168.16.24 255.255.255.255
```

As a result of this change, which of the statements below are true? (Select all valid responses)

- A. It creates a virtual, software only, interface.
- B. It provides a way to test the convergence of OSPF routing updates.
- C. The mask of 255.255.255.255 is called a host mask.
- D. It uses a wildcard mask of 255.255.255.255.
- E. It ensures that an interface is always active for OSPF processes.
- F. Loopback interfaces must be numbered 0.

Answer: A, C, E

Explanation:

When the OSPF process starts, the Cisco IOS uses the highest local IP addresses its OSPF router ID. If a loopback interface is configured, that address is used regardless of its value.

A loopback interface is a logical, software interface that is always up.

A 32-bit mask is sometimes called a host mask, because it specifies a single host and not a network or subnet.

Incorrect Answers:

- B. The addition of a loopback interface will in no way test the convergence speed of any OSPF process.
- D. A wildcard mask of value 255.255.255.255 will not check any of the bit values in the IP address.
- F. A loopback interface can be any number from 1-255.

QUESTION NO: 2

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Which IEEE standards apply when a company wants to implement 1000mbps Ethernet? (Select two options)?

- A. 802.3u
- B. 802.3ae
- C. 802.3ab
- D. 802.3e
- E. 802.3z
- F. 802.3i

Answer: C, E

Explanation:

The IEEE 802.3z standard describes 1000BASE-SX.

The 1000BaseT standard was released in June 1999, defined by IEEE 802.3ab.

Incorrect Answers:

A. This describes the standard used for wireless networks.

B. This is the standard for token ring networks.

D. On June 17, 2002 the IEEE 802.3ae specification for 10 Gigabit Ethernet was approved as an IEEE standard by the IEEE Standards Association (IEEE-SA) Standards Board.

F. IEEE 802.3u describes the standard for 100BASE-TX.

QUESTION NO: 3

You are a technician at Exam-zone. Your newly appointed Exam-zone trainee wants you to give her some examples of crosstalk.

What would your reply be? (Choose all that apply.)

- A. near-end crosstalk (NEXT)
- B. jitter crosstalk (JEXT)
- C. far end crosstalk (FEXT)
- D. middle closed-end crosstalk (MCEXT)
- E. power sum near-end crosstalk (PSNEXT)

Answer: A, C, E

Explanation: Near End Crosstalk (NEXT) is crosstalk measured at the transmitting end of the cable. Far

End Crosstalk (FEXT) is measured at the far end from where the signal was injected into the cable.

Power Sum NEXT (PSNEXT) is basically a mathematical calculation that simulates all four

pairs being energized at the same time. PSNEXT calculations are used to ensure that a cable will not exceed crosstalk noise performance requirements when all pairs are operating simultaneously.

PSNEXT is typically used in Gigabit Ethernet, rather than 10BaseT or 100BaseT.

Reference: Sybex CCNA 4.0 - P. 30

QUESTION NO: 4

You are a technician at Exam-zone. Your newly appointed Exam-zone trainee wants to know what the valid options for Frame LMI types are.

What would your reply be? (Choose all that apply.)

- A. EIA/TIA
- B. Q.932
- C. q933a
- D. IEEE
- E. Cisco
- F. ansi

Answer: C E F

Explanation:

Name	Document	IOS LMI-Type Parameter
• Cisco	Proprietary	cisco
• ANSI	T1.617 Annex D	ansi
• ITU	Q.933. Annex A	q.933a

Reference:

CCNA Self-Study CCNA ICND exam certification Guide (Cisco Press, ISBN 1-58720-083-X) Page 382

QUESTION NO: 6

You are the network administrator at Exam-zone. The Exam-zone network has expanded considerably over the last year. It is now one large, cumbersome network. You want to segment the network.

What devices can you use? (Choose all that apply.)

- A. Hubs
- B. Repeaters
- C. Switches
- D. Bridges
- E. Routers

Answer: C, D, E

Explanation:

Routers, switches, and bridges don't transmit broadcasts. They segment a large cumbersome network, into multiple efficient networks.

Incorrect Answers:

- A. Hubs is incorrect because a hub doesn't segment a network, it only allows more hosts on one. Hubs operate at layer one, and is used primarily to physically add more stations to the LAN.
- B. This also incorrect because the job of a repeater is to repeat a signal so it can exceed distance limitations. It also operates at layer one and provides no means for logical LAN segmentation.
- F. This is incorrect because media converters work by converting data from a different media type to work with the media of a LAN. It also operates at layer one and provides no means for logical LAN segmentation.

Routers perform which of the following functions? (Select three)

- A. Packet switching
- B. Collision prevention on a LAN segment.
- C. Packet filtering
- D. Broadcast domain enlargement
- E. Broadcast forwarding
- F. Internetwork communication

Answer: A, C, F

Explanation:

- A. Routers work in Layer 3 of the OSI Model. A major function of the router is to route packets between networks.
- C. Through the use of access lists, routers can permit and deny traffic using layer 3 and layer 4 packet information.
- F. The primary purpose of a router is to route traffic between different networks, allowing for internetworking.

Incorrect Answers:

- B. While routers can be used to segment LANs, which will reduce the amount of collisions; it can not prevent all collisions from occurring. As long as there are 2 or more

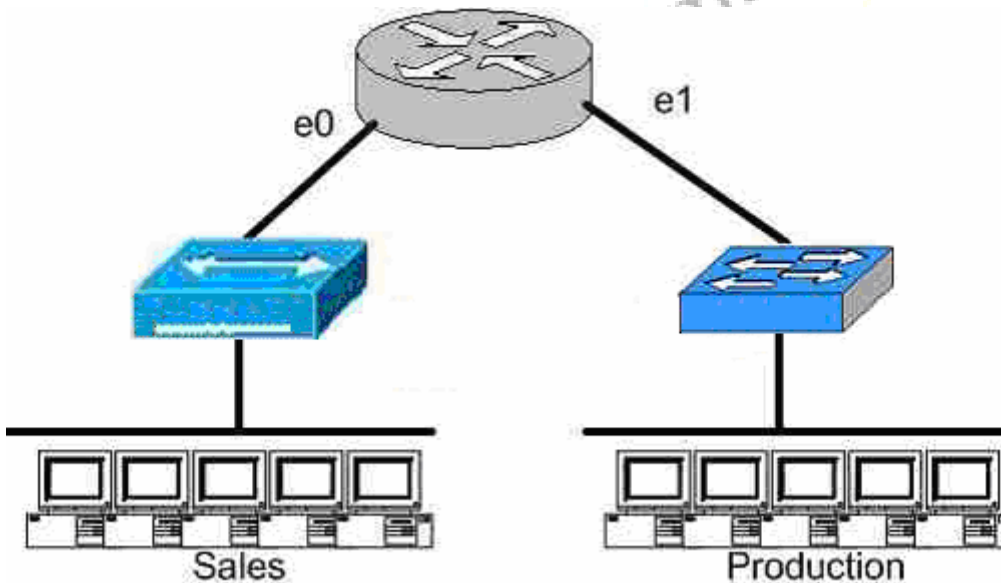
devices on a LAN segment, the possibility of a collision exists, whether a router is used or not.

D. The broadcast domain of a LAN is often segmented through the use of a router. This results in reducing the size of the broadcast domain.

E. Routers do not forward broadcast traffic.

QUESTION NO: 7

The Sales and Production networks are separated by a router as shown in the diagram below:



Which of the following statements most accurately describes the characteristics of the above networks broadcast and collision domains? (Select the two best answer choices)

- A. There are two broadcast domains in the network.
- B. There are four broadcast domains in the network.
- C. There are six broadcast domains in the network.
- D. There are four collision domains in the network.
- E. There are five collision domains in the network.
- F. There are seven collision domains in the network.

Answer: A, F

Explanation:

In this network we have a hub being used in the Sales department, and a switch being used in the Production department. Based on this, we have two broadcast domains: one for each network being separated by a router. For the collision domains, we have 5 computers and one port for E1 so we have 6 collision domains total because we use a switch in the Production Department so 5 are created there, plus one collision domain for the entire Sales department because a hub is being used.

QUESTION NO: 8

The Exam-zone corporate LAN consists of one large flat network. You decide to segment this LAN into two separate networks with a router. What will be the affect of this change?

- A. The number of broadcast domains will be decreased.
- B. It will make the broadcasting of traffic between domains more efficient between segments.
- C. It will increase the number of collisions.
- D. It will prevent segment 1's broadcasts from getting to segment 2.
- E. It will connect segment 1's broadcasts to segment 2.

Answer: D

Explanation

A router does not forward broadcast traffic. It therefore breaks up a broadcast domain, reducing unnecessary network traffic. Broadcasts from one segment will not be seen on the other segment.

Incorrect Answers:

- A. This will actually increase the number of broadcast domains from one to two.
- B. All link level traffic from segment one to segment two will now need to be routed between the two interfaces of the router. Although this will reduce the traffic on the LAN links, it does also provide a less efficient transport between the segments.
- C. Since the network size is effectively cut into half, the number of collisions should decrease dramatically.
- E. Broadcasts from one segment will be completely hidden from the other segment.

QUESTION NO: 9

Which of the following are benefits of segmenting a network with a router? (Select all that apply)

- A. Broadcasts are not forwarded across the router.

- B. All broadcasts are completely eliminated.
- C. Adding a router to the network decreases latency.
- D. Filtering can occur based on Layer 3 information.
- E. Routers are more efficient than switches and will process the data more quickly.
- F. None of the above.

Answer: A, D

Explanation

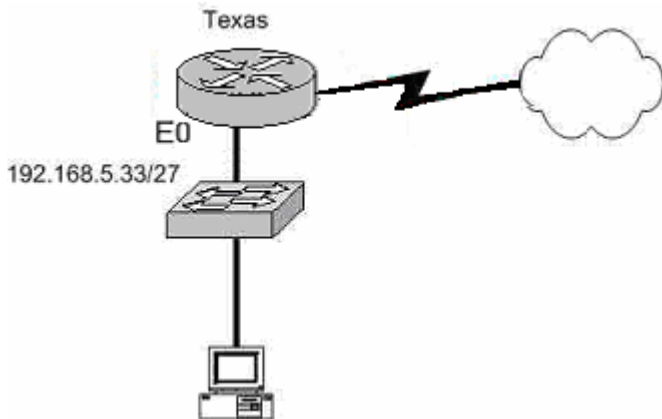
Routers do not forward broadcast messages and therefore breaks up a broadcast domain. In addition, routers can be used to filter network information with the use of access lists.

Incorrect Answers:

- B. Broadcasts will still be present on the LAN segments. They will be reduced, because routers will block broadcasts from one network to the other.
- C. Adding routers, or hops, to any network will actually increase the latency.
- E. The switching process is faster than the routing process. Since routers must do a layer 3 destination based lookup in order to reach destinations, they will process data more slowly than switches.

QUESTION NO: 10

The Exam-zone Texas branch network is displayed in the following diagram:



Of the following choices, which IP address should be assigned to the PC host?

- A. 192.168.5.5
- B. 192.168.5.32
- C. 192.168.5.40
- D. 192.168.5.63
- E. 192.168.5.75

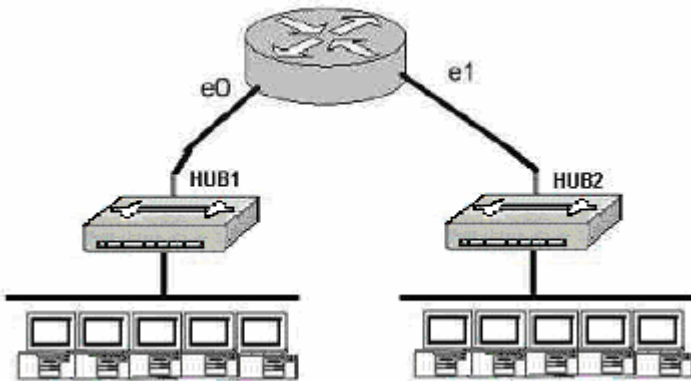
Answer: C.

Explanation:

The subnet mask used on this Ethernet segment is /27, which translates to 255.255.255.224. Valid hosts on the 192.168.5.33/27 subnet are 192.168.5.33-192.168.5.62, with 192.168.5.32 used as the network IP address and 192.168.5.63 used as the broadcast IP address. Therefore, only choice C falls.

QUESTION NO: 11

The Exam-zone.com network is displayed in the diagram below:



Based on the diagram above, how many collision domains are present in the Exam-zone.com network??

- A. One
- B. Two
- C. Three
- D. Four
- E. Five
- F. Six
- G. Fourteen

Answer: B

Explanation:

Since hubs are being used for both Ethernet segments, there are a total of two collision domains. Routers do not forward broadcast and are used to segment LANs, so Exam-

zoneA consists of one collision domain while Exam-zoneB consists of the second collision domain.

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