2.6.8 Practice Questions

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Score: 100%

Passing Score: 80%

[redacted]

Question 1. ✓ Correct

Which of the following statements are true about bridges? (Select two.)

- [ ] Bridges connect two networks that use different protocols.
- → [x] Bridges connect two network segments with the same network address.
- [ ] Bridges give each segment guaranteed bandwidth.
- → [x] Bridges convert one type of transmission medium into another.
- [ ] Bridges maintain a database of routes through a network.

Explanation

A bridge connects two segments within the same subnet. Bridges learn which side a host resides on by copying the MAC address of the source device and placing it into the MAC address table. The port number that the frame entered is also recorded in the table and associated with the source MAC address.

Another function of a bridge is to convert one type of transmission medium into another. A common example of this is a wireless bridge, which converts wired transmissions into wireless transmissions and vice versa.

Routers maintain a database of routes through a network.

Gateways connect two networks that use different protocols.

References

2.6.1 Switches

2.6.2 LAN Connectivity Device Facts

resources\text\t_lanswitch_ccna7\q_lanswitch_01_ccna7.question.xml

Question 2. ✓ Correct

At which layer of the OSI model do network switches operate that do not support routing?

- Transport
- → Data Link
- Physical
- Network

Explanation

Switches manipulate Ethernet frames at the Data Link layer of the OSI Model. Some switches, such as a Layer 3 switches, also work at the Network layer.

Network hubs operate at the physical layer of the OSI model. Devices such as routers and multi-layer switches operate at layers higher than the Data Link layer in the OSI model.

References

2.6.1 Switches

2.6.2 LAN Connectivity Device Facts

resources\text\t_lanswitch_ccna7\q_lanswitch_02_ccna7.question.xml

Question 3. ✓ Correct

Which of the following accurately describe how switches and hubs work? (Select two.)

- [x] Switches use the hardware address in the frame to send frames only to the port where the device is attached.
- [ ] A switch uses the logical addresses in a packet to send it through the correct port to all VLANs defined on that port.
- [ ] A switch simply receives signals and regenerates them.
- [ ] A hub uses the hardware address in the frame to forward it to the hosts on the VLAN that corresponds to that address.
- [x] A hub repeats frames to all ports, regardless of the destination address.

Explanation

It is important to remember that a hub simply receives signals and regenerates them, sending them to all connected devices.

A switch sends data only to the switch port connected to the device for which the data is addressed.

References

2.6.1 Switches

2.6.2 LAN Connectivity Device Facts

resources\text\t_lanswitch_ccna7\q_lanswitch_03_ccna7.question.xml

Question 4. ✓ Correct

You want to prevent collisions on your network by creating separate collision domains and defining virtual LANs. Which of the following devices should you choose?

- Bridge
- Active hub
- → Switch
- Router

Explanation

Use a switch to create additional collision domains on a LAN. A switch can be used to define virtual LANs within the switch itself, which a router can't do.

References

2.6.1 Switches

2.6.2 LAN Connectivity Device Facts

resources\text\t_lanswitch_ccna7\q_lanswitch_04_ccna7.question.xml

Question 5. ✓ Correct

Which of the following are general advantages of using routers on your network? (Select three.)

- [ ] Routers require less configuration and management than bridges.
- [ ] Routers provide less functionality than bridges or switches.
- [ ] Routers are less expensive than bridges or switches.
- [x] Routers provide multiple links between devices to support load balancing.
- [x] Routers support multiple routing protocols for better flexibility.
- [ ] Routers provide guaranteed bandwidth between two devices.
- [x] Routers provide more features, such as flow control, error detection, and congestion control, than switches or bridges.

Explanation

Routers provide more functionality than either switches or bridges. For example, routers:

- Support multiple routing protocols for better flexibility.
- Provide more features than switches or bridges, such as flow control, error detection, and congestion control.
- Provide multiple links between devices to support load balancing.
- Can connect different network architectures together. For example, a router could be used to connect an older token ring network to an Ethernet network.

Because of their enhanced features, routers are also more expensive and more difficult to configure that switches or bridges.

References

2.6.3 Routers

2.6.4 Router Facts

resources\text\t_routers_ccna7\q_routers_01_ccna7.question.xml

Question 6. ✓ Correct

You have been put in charge of connecting two company networks that were previously separated.

You need to connect a 100BaseTx Ethernet network with an older token ring network. Most traffic will be localized within each network, with only a little traffic crossing between networks. Both networks are using the TCP/IP protocol suite.

Which connectivity device would be the best choice in this situation?

- Bridge
- Hub
- Switch
- → Router

Explanation

You should use a router to connect the networks.

Because each network uses a different architecture (and has a different network address and different device addressing scheme), you cannot use a bridge or a switch. A gateway is not needed because both networks are using the same protocol.

References

2.6.3 Routers

2.6.4 Router Facts

resources\text\t_routers_ccna7\q_routers_02_ccna7.question.xml

Question 7. ✓ Correct

You are asked to design a LAN segmentation solution for Company AGH. They have three workgroups separated with VLANs: Accounting, Sales, and Service. Most network traffic is localized within the individual workgroups, but some traffic crosses between each group. Company AGH is especially concerned about the security of information within the Accounting department.

Which segmentation device meets the functionality requirements and provides the simplest, most economical administration?

→ (•) Router

( ) Hub

( ) Bridge

( ) Switch

Explanation

Select a router to meet the needs specified in this scenario. The need to keep the Accounting workgroup's traffic secure calls for segmenting them into their own subnet. The router would keep their internal traffic from getting out to the rest of the network.

While a Layer 3, or multilayer, switch can also be used to meet these needs, the switch listed here is not specified as a Layer 3 switch, so it is assumed to be a Layer 2 switch, which would not be able to route traffic from one network to another. You can configure virtual LANs (VLANs) for each workgroup on a switch to segment the network, but a router would be required for data to cross between the workgroups. A switch and router used in combination is another solution, but that would not meet the requirement to be the most economical and simple solution. In addition, routers enforce security better than bridges or hubs.

References

2.6.3 Routers

2.6.4 Router Facts

resources\text\t_routers_ccna7\q_routers_03_ccna7.question.xml

Question 8. ✓ Correct

Which of the following describes the function of a dedicated wireless access point on a network?

- On a network, a wireless access point only acts as a router that connects the wireless network to the wired network.
- On a network, a wireless access point only acts as a hub that connects to both the wireless and wired networks.
- On a network, a wireless access point only acts as a switch that forwards traffic from the wireless network to the wired network.
- → On a network, a wireless access point only acts as a bridge between the wireless segment and the wired segment on the same subnet.

Explanation

On a network, a wireless access point only acts as a bridge between the wireless segment and the wired segment on the same subnet. The function of a bridge is to connect two segments of the same subnet. On an enterprise network, the wired segment and the wireless segment need to be on the same subnet, so the wireless access point acts as a bridge between these two segments.

References

2.6.6 Network Appliances

2.6.7 Network Appliance Facts

resources\text\t_netappliances_ccna7\q_netappliances_01_ccna7.question.xml

Question 9. ✓ Correct

Which is the primary role of a firewall?

- To protect network users from accessing dangerous or questionable web pages. The firewall does this using a website blacklist.
- To detect and block messages that contain viruses and worms that could infect the network or workstations.
- To protect users from phishing, botnets, and other types of social networking and social media attacks.
- → To protect networks and workstations by allowing or denying network traffic. The firewall does this using a configured set of rules.

Explanation

A firewall is a software-based or hardware-based network security system that allows or denies network traffic. The firewall does this using a configured set of rules.

References

 **2.6.6 Network Appliances**

 **2.6.7 Network Appliance Facts**

resources\text\t_netappliances_ccna7\q_netappliances_02_ccna7.question.xml

Question 10. ✓ Correct

Match the firewall types on the left with the characteristics shown on the right. (Firewall types may be used more than once.)

Usually a software firewall

✓ Host-based firewall

Most robust and secure firewall

✓ Network-based firewall

Considered a hardware firewall

✓ Network-based firewall

Installed on a single computer

✓ Host-based firewall

Installed on the edge of a network

✓ Network-based firewall

Less robust and less customizable

✓ Host-based firewall

Explanation

Network-based firewalls are installed on the edge of a private network or network segment.

- Most network-based firewalls are considered hardware firewalls, even though they use a combination of hardware and software to protect the network from internet attacks.
- Network-based firewalls are more expensive and require more configuration than other types of firewalls, but they are much more robust and secure.

Host-based firewalls are installed on a single computer in a network. Almost all host-based firewalls are software firewalls.

- A host-based firewall can be used to protect a computer when no network-based firewall exists (such as when connected to a public network).
- Host-based firewalls are less expensive and easier to use than network-based firewalls, but they don't offer the same level of protection or customization.

References

2.6.6 Network Appliances

2.6.7 Network Appliance Facts

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