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CCNA Interview Questions and Answers

CCNA is an associate-level IT certification from Cisco. With the help of this certification, IT professionals can endorse their knowledge of understanding, contouring, operating and troubleshooting medium level routed and switched networks. Engineers with a background in networking are highly considered in the IT Industry and acquiring a certification of this level will enhance their chances of landing a nicely- paid job. There are a variety of CCNA courses available as per the needs of the candidates.

Cisco along with its partners offer a plethora of training methods that include the books that are published by Cisco Press and courses that are available online as well as offline. The topics under CCNA include how to connect to a WAN, network media, how to implement network security, network types and a lot many more technicalities. It teaches you what routing is, what the purpose of the data link is when network congestion can occur and also whether a bridge divides a network into smaller sections.

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Q1. What is Routing?

Routing is a simple process of trading route information from one router to another. In the absence of routing it is not possible to connect two or more networks located at same or different geographical areas. It is more or less the process of finding a path through which data can pass from source to destination. Routing is done using routers. Routers are network-layer devices that forward data packets along a network.

Q2. What is a Link?

A link is a logical or a physical component of a network to interconnect nodes or devices. The job of a data link layer is to check whether the messages are being sent to the right device or not. One of its other functions is framing.

Q3. Explian what is a node?

A node as the name suggests is the connection point on the network for the transmission of data. This connection point can be a printer or a computer or any kind of device that can send and receive data over the network.

Q4. What are the different layers of OSI model?

In total there are seven different layers of the Open Systems Interconnection model. These are Data Link Layer, Transport Layer, Physical Layer, Network Layer, Presentation Layer, Session Layer and Application Layer.

Q5. What is the main advantage of using switches?

Switches are network devices on the second layer of OSI model. A few of these switches also operate at a higher level as well. Also called intelligent hubs, switches operate on hardware addresses to exchange data across the devices connected to them. First, it performs broadcast and then Unicast. It supports a full-length duplex data transfer communication.

When a switch is given a signal, it develops a frame from the parts that are from the signal. Through this process, it gains access and reads the address of the destination. Post this it sends the frame to the appropriate port. This is a very effective means of data transmission, in spite of broadcasting it on all ports. Switches can also avoid loops through the use of spanning tree protocol.

Q6. What is the difference between Hub, Switch, and Router?

Hub operates on the first layer of the OSI model, unlike switches that operate on layer 2 and even on higher standards of the OSI models. They cannot process second or third layer traffic. As already mentioned, the second layer deals with hardware addresses and the third layer with IP addresses where the switches come to use.

Switches work on hardware addresses to exchange data across the devices that are connected to them. Hence, hubs can't process any information based on MAC or IP addresses. Adding to this, Hubs cannot even process data based on if it is broadcast, unicast or multicast data. In contradiction to this switches first, perform broadcast and then unicast.

One advantage that it has is that Hub can transfer data to every port, but then again it can't transfer data to the port where the data was generated. Hubs only work in half-duplex mode. Also, collisions can happen. In case a collision does happen, hub rejects all the data from all the devices then signals them to send the data again.

Bridge and switch are different in a way that a switch forwards data at wire speed as it uses ASICs that are special hardware circuits. Switches support full duplex data transfer communication. Switches cannot be used in large networks that are divided into sub-networks because they cannot forward networks or database. Using spanning tree protocol, switches can avoid loops as well. Switches can have unlimited ports because switches don't divide speed like hubs.

Routers, unlike switches and hubs, operate at the third layer of OSI models. Due to these, routers can forward data across networks. Routers are very rich in features when compared to switches. They maintain a routing table for data forwarding. They also have lesser port densities if compared to switches.

Q7. What is Window in networking terms?

A Window is that segment that is sent from the source to destination before an acknowledgment is sent.

Q8. What is the role of the LLC Sublayer?

LLC stands for Logical Link Control. It provides optional services to an application developer. One way to provide flow control to the network layer is by using stop or start codes. It can also provide error correction.

Q9. How is RIP different from IGRP?

RIP depends on the number of hops for finding out the best route to a network. Meanwhile, IGRP takes into consideration some things before determining the best route. It considers bandwidth, MTU, reliability as well as the hop count.

Q10. What are the different memories that are used in a Cisco Router?

A Cisco Router uses the following memories:

- DRAM-DRAM stores the configuration file being executed
- NVRAM- NVRAM stores the startup configuration file
- Flash Memory- The Flash Memory has the Cisco IOS

Q11. What is the difference between the User mode and the Privileged Mode?

When you are using a Cisco Router, the User mode is being used for the regular task. For instance, it is used to connect to remote devices, to see system information; it is also used to check the status of the router. On a different note, the Privileged mode includes all options that are there for the user mode and more. This mode can also be used for making any changes in the configurations on the router including debugging and making various tests.

Q12. What is the difference between full duplex and half duplex?

In full duplex, both the devices, the one that is transmitting and the other that is receiving at the same time, can communicate together. This means that both the devices, the one transmitting and the other receiving, can receive and transmit at the same time. On the other hand, in case of half duplex, a device cannot transmit while it is receiving and vice versa.

Q13. How do you configure a Cisco router for routing IPX?

To configure a Cisco router for routing IPX, the first thing to do is to enable IPX routing by using the command, 'IPX Routing.' Each interface that's used in the IPX network is then configured with a number for the network and an encapsulation method. There are two kinds of IPX access list- Standard and Extended. Standard Access List can filter only the source or the destination IP address. On the other hand, an extended access list uses the source and destination IP address, socket, protocol and port while filtering a network.

Q14. What are the steps of conversion for data encapsulation?

The steps of conversion for data encapsulation are:

- First, Second and Third layer (Application/session/presentation)- the alphanumeric input from the user is converted into data
- Fourth Layer (Transport)- data is yet converted into small segments
- Fifth Layer (Networking)- data is now converted to little packets of datagrams, and the network header is added
- Sixth Layer (Data Links)- Packets or datagrams are built into frames

- Seventh Layer (Physical)- frames are finally converted into bits

Q15. Differentiate between broadcast domain and collision domain

In a broadcast domain, if a broadcast frame is forwarded, every device becomes alert and pays attention to receive the data. In a collision domain, the chances of data colliding are huge. Just as in Hub, if more than one sends traffic at the same instant, data will collide mid-way, and no one will receive data.

Q16. How are straight and crossable cables different from each other?

We use straight cable to connect two different layer devices like router-pc, router switch as well as the switch pc while the cross cable is used for connecting two same layer devices like a switch with a switch, a router with router and pc with pc. Color-coding for both the cables is different. However, if the color-coding on the end of the cable is same, then it is a straight cable. Whereas, if 2<->6, 1<-> three is used then it is a cross cable used for data transfer.

Q17. Define the different kinds of casting

Firstly, there is unicasting, which refers to one-on-one communication. Multicasting, on the other hand, means a one-to-many chain of communication. In multicasting, however, there must be at least one device that is not receiving the file. Broadcasting, on the other hand, means one-to-all communication. In case of broadcasting, every device receives packets. Lastly, anycast is one-to-nearest communication. It works on IPv6.

Q18. What are the steps of data encapsulation?

Data encapsulation is the process of adding header and trailer information in the data. Whenever data is being passed from one layer to another, the layers add some extra information to the data. This is known as a header. The next layer processes the data and adds its own header. As the data further moves on through layers, the same process continues until the data is placed on the physical media. This entire process is called encapsulation. In contradiction to this, removing the trailer information and the header from the data is called data decapsulation.

Q19. How is Private IP different from Public IP?

When you have to route globally over the internet, public IP addresses are used. They are provided to different websites and companies for access over the Internet. Once connected to the internet, they become unique worldwide. On the other hand, private IP addresses are for personal and local use. You cannot route them over the internet. Private IP addresses can be the same in different organizations.

Q20. What are the protocols that are used by every layer of IP/TCP model?

Transport Layer uses only two protocols, UDP and TCP. Application layer uses FTP, HTTP, SSH, Telnet, DNS, TFTP, DHCP, and SMTP. The Internet layer uses three protocols, ICMP, IP, and IGMP. In the end, the Network Access layer uses Token Ring, Frame Relay, RARP, Ethernet, ARP, FDDI, and X.25.

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