Congratulations! You passed!

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The Network Layer

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1. Question — 1 / 1 point

An ARP broadcast is sent to the special MAC address _____.

- (•) FF:FF:FF:FF:FF:FF
- ( ) 00:00:00:00:00:00
- ( ) 255.255.255.255
- ( ) 192.168.0.1

Correct

You got it! ARP broadcasts are used to ask all devices on a local area network if they're associated with a specific IP address.

2. Question — 1 / 1 point

A network device that knows how to forward data along to other networks is known as a _____.

- ( ) switch
- ( ) hub
- (•) router
- ( ) server

Correct

Right on! A router allows devices on different networks to communicate with each other.

3. Question — 1 / 1 point

Interior gateway protocols are used by routers in order to share information within a single _____.

- ( ) collision domain
- ( ) subnet
- (•) autonomous system
- ( ) destination network

Correct

Great job! An autonomous system is a group of networks all maintained by the same organization.

4. Question — 1 / 1 point

A _____ is where one network ends and another begins.

- ( ) subnet mask
- ( ) routing table
- (•) demarcation point
- ( ) routing protocol

Correct

You got it! It's important to know about demarcation points so that you understand where responsibility of the operation of a network begins and ends.

5. Question — 1 / 1 point

Using logical operators, 1 AND 0 = _____.

- ( ) True
- (•) False
- ( ) 1
- ( ) 2

Correct

Nice job! Using the AND operator, the result is only 1, or true, if both sides are also 1, or true.

6. Question — 1 / 1 point

Why do entries in a local Address Resolution Protocol (ARP) table expire after a short amount of time?

- ( ) To keep space in the table.
- (•) To account for network changes
- ( ) It only needs to be used one time.
- ( ) It will use too much memory.

Correct

Nice job! ARP table entries generally expire after a short amount of time to ensure changes in the network are accounted for.

7. Question — 1 / 1 point

A router is performing basic routing functions. What will be the third step in the transmission of a packet?

- (•) The router looks up the destination network in its routing table.
- ( ) The router examines the destination IP.
- ( ) The router forwards the packet.
- ( ) A router receives a packet of data.

Correct

Great work! The router looks up the destination network of the IP address in its routing table in the third step.

8. Question — 1 / 1 point

What is eight bits of data called?

- ( ) Octuplet
- ( ) Figure eight
- (•) Octet
- ( ) Octoploid

Correct

You nailed it! Eight bits of data, or a single octet, can represent all decimal numbers from 0-255.

9. Question — 1 / 1 point

When dealing with IPv4, what is the minimum IP header length?

- ( ) 8 bits
- (•) 20 bytes
- ( ) 4 kilobytes
- ( ) 64 bytes

Correct

Right on! An IP header is almost always 20 bytes in length when dealing with IPv4. 20 bytes is the minimum length of an IP header.

10. Question — 1 / 1 point

What is the process of taking a single IP datagram and splitting it up into several smaller datagrams called?

- ( ) Clustering
- ( ) NAT firewall
- ( ) Load balancing
- (•) Fragmentation

Correct

Great work! Fragmentation is the process of taking a single IP datagram and splitting it up into several smaller datagrams.

11. Question — 1 / 1 point

What is the purpose of an ARP response?

- ( ) To send an ACK message to the broadcasting computer
- ( ) To improve authentication security
- (•) To let a computer broadcasting an ARP message know what MAC address to put into the destination hardware address field
- ( ) To prevent a flood of UDP packets

Correct

Right on! The node that wants to send data sends a broadcast ARP message to the MAC broadcast address which is all Fs. When the network interface receives this ARP broadcast, it sends back what's known as an ARP response. This response message will contain the MAC address for the network interface in question.

12. Question — 1 / 1 point

What does the subnet mask 255.255.255.0 tell a router?

- ( ) What the MAC address of a host is
- ( ) The static IP of the gateway router
- ( ) The next hop in the network route
- (•) Which part of an IP address is the subnet ID and which is the host ID

Correct

You nailed it! The purpose of the part of the mask that reads 255, or all 1s in binary, is to tell a router what part of an IP address is the subnet ID.

13. Question — 1 / 1 point

What is the term for the place one network ends and another begins?

- ( ) Subnet
- ( ) NAT firewall
- (•) Demarcation point
- ( ) DMZ

Correct

Nice job! To demarcate something means to set something off. When discussing computer networking you'll often hear the term demarcation point to describe where one network or system ends and another one begins.

14. Question — 1 / 1 point

How many possible host IDs do you always lose per network?

- (•) 2
- ( ) 4
- ( ) 8
- ( ) 12

Correct

Right on! You always lose two host IDs per network. So, if a /24 network has 2^8 or 256 potential hosts, you really only have 256 - 2 = 254 available IPs to assign.

15. Question — 1 / 1 point

How many bits long is a Autonomous System Number (ASN)?

- ( ) 8
- ( ) 4
- ( ) 64
- (•) 32

Correct

Nice job! ASNs are numbers assigned to individual autonomous systems, just like IP addresses. ASNs are 32-bit numbers. But, unlike IP addresses, they're normally referred to as just a single decimal number instead of being split out into readable bits.