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Net Review

Question Set 1: 4.1 – Protocols and Addresses

1. In a networking context, what is a protocol?

- In a networking context, a protocol is a set of instructions that are used between systems to communicate.

2. What is the major protocol used on the Internet?

- TCP/IP is the major protocol used on the Internet.

3. At what OSI/ISO layer does IP operate?

- In the OSI/ISO, the IP operates in the network layer.

From Protocols and Addresses part 2 of 3...

1. What three pieces of information do you need to configure TCP/IP?

- To configure TCP/IP you need an IP address, the Subnet Mask, and the Default Gateway.

2. Is the IP address a single address?

- No, an IP address is a set of 4 numbers that are separated into a network ID and a host ID.

3. When was classfull addressing last used?

- Classfull addressing was last used in 1993 when CIDR replaced it.

4. What are the three major classes of addresses?

- Class A: 255.0.0.0
- Class B: 255.255.0.0
- Class C: 255.255.255.0

Protocols and Addresses part 3 of 3…

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1. What is DNS? What does it do?

- A DNS is the Domain Name System and it converts the domain name into an IP address so that the computer can connect to a designated address or website.

2. What is DHCP? What does it do?

- DHCP is the dynamic host configuration protocol. It assigns an IP address and all other TCP/IP information.

3. Which proprietary Microsoft protocol was used in early versions of Microsoft Windows?

- NetBEUI, a proprietary Microsoft protocol, was used in early versions of Microsoft Windows.

4. Which protocol is used to resolve a fully qualified domain name to an IP address?

- DNS is the protocol used to resolve a fully qualified domain name to an IP address.

Question Set 2: 4.1 – Common Ports

1. In a TCP/IP context, what is a port?

- In a TCP/IP context, a port is window that is open on a computer that allows data to be sent to the computer.

2. What is a non-ephemeral port?

- A non-ephemeral port is a permanent port number that is usually on a server.

3. What is meant by the term "well known" port?

- A well-known port is when people decide on a same number setup for the port.

4. Compare and contrast TCP and UDP ports.

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- TCP and UDP ports use port numbers between 0 and 65,535 but use different numbering setups.

Common Ports Part Two

1. What port does the DNS service utilize?

- DNS service utilizes UDP/53 port.

2. What port does the HTTPS protocol utilize?

- The HTTPS protocol utilizes TCP/443 port.

3. What is the protocol SMTP and what port does it use?

- The Simple Mail Transfer Protocol is a protocol used to send mail and it uses TCP/25 port.

Question Set 3: 4.1 – Network Technologies

1. How does Professor Messer define a network?

- Professor Messer defines a network as devices being connected together.

2. What is a network Topology? And who makes Network Topology Standards?

- A network topology is the architecture of the network such as star, ring, bus, etc. IEEE makes the network topology standards

3. What is the most popular form of consumer networking?

- The most popular form is Wireless/Wifi.

4. What is the term that describes a network that can communicate in both directions at the same time?

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- A full duplex network is the term that describes a network that can communicate in both directions at the same time.

5. What differentiates a LAN from a WAN?

- WAN has a wider range of distance to connect to. Usually multiple LAN's make up a WAN. A LAN has a smaller range.

Question Set 4: 4.1 – IPv4 and IPv6

1. What is the most widely used protocol in the world?

- The most widely used protocol in the world is IPv4.

2. Compare and contrast the lengths of IPV4 and IPV6.

- Address lengths are different between IPV4 and IPV6. IPV4 has a 32-bit address and IPV6 has a 128-bit address.

3. Is this a valid IPv4 address: "192.1.325.12"?

- No. It can only go up to 255.

4. Is this a valid IPv6 address: "a::b::c"?

- Yes, the colons can clean all the empty spaces of 0.

Question Set 5: 4.2 – Network Cabling and Connectors

1. What is the alliance of trade associations that makes network cabling standards?

- EIA and the TIA are the alliance of trade associations that makes network cabling standards.

2. What is the Commercial Building Telecommunications Cabling Standard that we use for cabling?

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- The Commercial Building Telecommunications Cabling Standard is a set of telecommunications standards that addresses commercial building cabling for telecom products and services.

3. What is the most common physical type of cabling?

- Twisted pair copper cabling is the most common physical type of cabling.

4. What category of copper cable support 100 Mbits Ethernet?

- Category 5 of copper cable supports 100 Mbits Ethernet.

5. What category of copper cable supports 10 Gbits Ethernet through 55 meteres?

- Category 6 of copper cable supports 10 Gbits Ethernet through 55 meters.

Part 2

1. What is plenum rated cable?

- Plenum rated cable is designed to resist plenum so it won't burn quick.

2. What type of cable did Ethernet originally use? Hint, same type of cable as used in cable TV.

- Ethernet originally used coaxial cable.

3. What is the type of cable that is most suited for sending signals a long distance?

- Fiber optic cables are most suited for long distances.

4. If you were connecting machines within a data center, what type of fiber would you be most likely to use?

- If I were I connecting machines within a data center, I would most likely use multi- node fiber.

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5. If you were connecting two remote buildings, what type of fiber would you be most likely to use?

- If I were connecting two remote buildings, I would use a single- mode fiber.

6. What type of jack would you use for Ethernet?

- RJ-45 jack for Ethernet.

7. What type of jack would a phone use?

- RJ-11 jack for phone use.

Question Set 6: 4.3 – Network Types

1. What high speed type of network runs over telephone lines?

- ADSL network runs over telephone lines.

2. What type of high speed network runs over coax cable?

- Cable modem networks run over coax cable.

3. Of the popular types of home high speed networks utilizes non-terrestrial networks that typically have a high latency?

- Satellite utilizes non-terrestrial networks that typically have a high latency.

Part 2

1. What was Bluetooth originally designed to replace?

- Bluetooth was originally designed to replace slow-speed wires.

2. What type of network would Bluetooth create?

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- Bluetooth created a PAN.

Question Set 7: 4.3 – Wireless Networking

1. What is the IEEE family of standards for wireless networking?

- The IEEE family of standards for wireless networking is 802.11a/b/g/n.

2. How do the different members of the 802.11 family differ?

- The different members of the 802.11 family differ by speeds, distance, channels, and frequencies.

3. Which 802.11 standard utilizes MIMO?

- 802.11n standard utilizes MIMO.

4. Which 802.11 standard represents an improvement, and backwards compatibility, with 802.11b?

- 802.11g represents an improvement, and backwards compatibility with 802.11b.

Part 2

1. What was the original encryption utilized by 802.11?

- WEP was the original encryption utilized by 802.11.

2. When were WEP cryptographic vulnerabilities identified?

- In 2001, WEP cryptographic vulnerabilities were identified.

3. What type of encryption was created to improve on WEP but utilize the same hardware?

- WPA encryption was created to improve on WEP but utilize the same hardware.

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4. What type of wireless encryption is based on the Advanced Encryption Standard (AES)?

- WPA2 encryption is based on the Advanced Encryption Standard.

Part 3

1. In wireless networking, what is an SSID?

- In wireless networking, an SSID names a wireless network.

2. Disabling SSID broadcast is an important security configuration.

- Disabling SSID broadcast makes it difficult to find without knowing the SSID but is not really a security configuration.

3. What is the general security term used to describe the disabling of SSID broadcast?

- Security through obscurity is the general security term used to describe the disabling of SSID broadcast.

4. Can MAC addresses be spoofed?

- Yes, MAC addresses can be spoofed.

5. What wireless networking standard supports speeds up to 600 megabits per second?

- 802.11n supports speeds up to 600 megabits per second.