*Module 6. Network security, Maintenance and Troubleshooting procedures*

Topic: A SOHO Networks

• Beginner Question

1. **What is SOHO network?**

* A Small Office Home Office network refers to a type of local area or LAN network connection designed for small businesses.

1. **What does SOHO mean networking?**

* It typically involves a small number of employees, usually ranging from 1 to 10.

• Intermediate Question

1. **How does a SOHO network work?**

* SOHO networks can be a small wired Ethernet LAN or a combination of wired and wireless computers.

1. **Issues with Soho Networking?**

* small businesses generally cannot afford to hire a professional staff to manage their networks.

• Advance Question

1. **How Small is the “S” in SOHO?**

* As such, SOHOs generally employ fewer than 10 people

1. **SOHO Routers vs. Home Routers?**

* Modern SOHO routers require almost the same functions as home broadband routers, and small businesses use the same models.

Topic: NAT & PAT

• Beginner Question

1. **What is NAT?**

* NAT stands for network address translation. It's a way to map multiple private addresses inside a local network to a public IP address before transferring the information onto the internet.

1. **What is PAT?**

* to strike lightly or gently with something flat, as with a paddle or the palm of the hand, usually in order to flatten, smooth, or shape

1. **Different between NAT & PAT?**

* In NAT, Private IP addresses are translated into the public IP address. In PAT, Private IP addresses are translated into the public IP address via Port numbers.

• Intermediate Question

1. **However, Will Nat work?**

* NAT works by having a firewall act as an intermediary for traffic entering and leaving the protected network.

1. **Explain NAT?**

* NAT stands for network address translation. It's a way to map multiple private addresses inside a local network to a public IP address before transferring the information onto the internet.

• Advance Question

1. **What is different between Static & Dynamic NAT?**

* static NAT allows a remote host to initiate a connection to a translated host if an access list exists that allows it, while dynamic NAT does not.

1. **NAT stand for?**

* NAT stands for network address translation. It's a way to map multiple private addresses inside a local network to a public IP address before transferring the information onto the internet.

1. **PAT stand for?**

* Port Address Translation is an extension of Network Address Translation that permits multiple devices on a LAN to be mapped to a single public IP address to conserve IP addresses.

Topic: Authenticaton and Access Control

• Beginner Question

1. **What Is Acl?**

* An access control list is made up of rules that either allow access to a computer environment or deny it. In a way, an access control list is like a guest list at an exclusive club.

1. **What Are Different Types of Acl?**

* Standard ACL

Extended ACL

Dynamic ACL

Reflexive ACL

Extended ACLs

• Intermediate Question

1. **Explain Standard Access List?**

* A standard access list is a type of ACL used to filter traffic based on the source IP address only.

1. **Explain Extended Access List?**

* An extended access control list can filter packets with a higher degree of specification.

• Advance Question

1. **What Is Wildcard Mask?**

* A wildcard mask allows or denies all the traffic from a network IP address. The wildcard mask tells the router which bits in the IP address need to match the access list and which do not.

1. **In Which Directions We Can Apply an Access List?**

* per direction and per interface.

Topic: WAN Technologies

• Beginner Question

1. **Fiber-optic communication**

* Fiber optic communication is a method of transmitting data using light, rather than electricity like standard wires and cabling.

1. **What is Leased Line**

* A leased line is an allocated circuit between two points of communication.

**3. Explain Circuit switching**

* Circuit switching is a type of network configuration in which a physical path is obtained and dedicated to a single connection between two endpoints in the network for the duration of a dedicated connection.

• Intermediate Question

1. **Explain Packet Switching**

* Packet switching is the transfer of small pieces of data across various networks.

1. **What is difference between leased line and broadband?**

* A leased line is a dedicated connection, and there is no contention. Your business is connected directly to the local exchange and you don't share access with local residents or businesses. Conversely, broadband is not a dedicated connection and you share your connection with others.

1. **How much is a 100mb Leased Line?**

* 100Mb leased line is between £230 and £280 per month.

• Advance Question

1. **Difference between a POTS line and a leased line?**

* POTS line is voice-grade, dial up, while leased line is better quality, always on.

1. **What is the process of packet switching?**

* Packet switching is the method by which the internet works, it features delivery of packets of data between devices over a shared network.

1. **Difference between circuit switching and packet switching?**

* In circuit switching, users are charged based on time and the basis of distance. In packet switching, users are charged based on time and number of bytes carried & not based on distance.

1. **Practice on printer sharing**

* Done

1. **Use of IIS [ Via "add and remove" feature from control panel. "appwiz.cpl" command]**

* Done

Topic: Communication technologies Cloud and Virtualization

• Beginner Question

1. **What is virtualization?**

* Virtualization is technology that you can use to create virtual representations of servers, storage, networks, and other physical machines.

1. **What are two types of virtualization in cloud?**

* Remote desktop services and Virtual Desktop Infrastructure .

• Intermediate Question

1. **What are the two types of virtualization?**

* Server-based application virtualization

 Local application virtualization

1. **What is VMware virtualization technology**?

* VMware server virtualization, a hypervisor is installed on the physical server to allow for multiple virtual machines to run on the same physical server. Each VM can run its own operating system, which means multiple OSes can run on one physical server.

• Advance Question

1. **What is the difference between cloud and virtualization?**

* virtualization can make one resource act like many, while cloud computing lets different users access a single pool of resources.

1. **What are the benefits of implementing virtualization in cloud computing?**

* Virtualization improves hardware resources used in your data center.

Topic: Monitoring Tools

• Beginner Question

1. **Why are network monitoring tools used?**

* A network monitoring tool can be used to get a unified view of on-premise and cloud network metrics, as well as the health of data flowing between both environments.

1. **Explain firewalls**

* A firewall is a network security device that monitors incoming and outgoing network traffic and decides whether to allow or block specific traffic based on a defined set of security rules.

• Intermediate Question

1. **Explain core switches**

* A core switch establishes connections between different segments and subnets within a network, enabling seamless communication and data transfer.

1. **Explain client systems**

* Client Systems means the Client's information technology infrastructure, including computers, software, hardware, databases, and networks, whether operated directly by Client or through the use of third-party services.

• Advance Question

1. **What is network management?**

* Network management is the sum total of applications, tools and processes used to provision, operate, maintain, administer and secure network infrastructure.

1. **Explain Event Viewer**

* Event Viewer is a tool in the Microsoft Windows operating system that provides a comprehensive log of system events to offer administrators the information required for system upkeep, security, and accountability.

1. **Practice "parental control" or "family safety" option in control panel**

* Done

Topic: Network Security, Network vulnerabilities

• Beginner Question

1. **What are network vulnerabilities?**

* A network vulnerability is a weakness or flaw in software, hardware, or organizational processes, which when compromised by a threat, can result in a security breach.

1. **What are the types of network security attacks?**

* Malware Attack. This is one of the most common

types of cyberattacks.

Phishing Attack. Phishing attacks are one of the

most prominent widespread

types of cyberattacks.

Password Attack.

Man-in-the-Middle Attack.

SQL Injection Attack.

• Intermediate Question

1. **What is virus in network security?**

* A computer program that can copy itself and infect a computer without permission or knowledge of the user. A virus might corrupt or delete data on a computer, use e-mail programs to spread itself to other computers

1. **What is the difference between virus and antivirus?**

* Computer virus is a malicious program, which has the ability to replicate and execute itself. An antivirus software is a computer program used to scan files. It detects, prevents, identifies and eliminates computer viruses and other malicious softwares.

• Advance Question

1. **Who is vulnerable in network security?**

* Network vulnerabilities are weaknesses within an organization's hardware or software infrastructure that allow cyber attackers to gain access and cause harm.

1. **How do you assess vulnerability?**

* Network-Based Vulnerability Assessment.

Application-Based Vulnerability Assessment.

API-Based Vulnerability Assessment.

Host-Based Vulnerability Assessment.

Wireless Network Vulnerability Assessment.

Physical Vulnerability Assessment.

1. **What are the principles of network security?**

* confidentiality, integrity and availability.

1. **What is a firewall to use for?**

* A firewall's main purpose is to allow non-threatening traffic in and to keep dangerous traffic out.

1. **configure advanced firewall setting?**

* Done

1. **configure "date and time" opti**

* Done