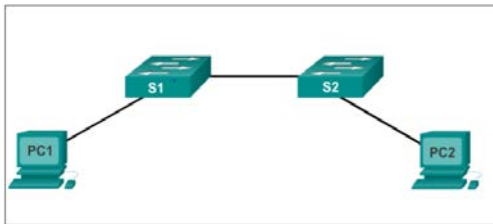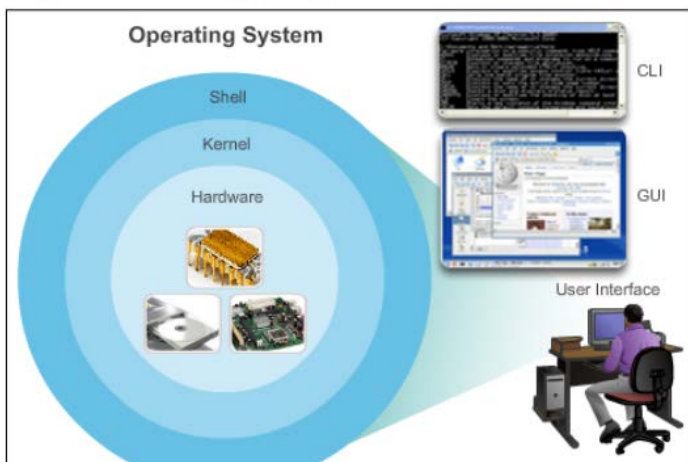**Network Essentials Chapter 2A Review**

Name _____-

1. IOS stands for Internetwork Operating System. It is a package of routing, switching, internetworking and telecommunications functions integrated into a multitasking operating system.

2. A home router has an OS known as firmware.

3. In the diagram below, S1 and S2 are switches.


4. Fill in the blanks.

5. An OS consists of a Shell, a Kernel and Hardware. It allows users to interact with the system via CLI and GUI. CLI stands for Command Line Interface, and GUI stands for Graphic User Interface.

6. The kernel allows communication between software and hardware. It also manages hardware resources to meet software requirements.

7. PC operating systems (Windows 8 and OS X) perform technical functions that enable:

- Use of a mouse - Viewing of output on video display units - Entering of text using input devices

8. Switch or router IOS provides options to: Configure interfaces ; Enable routing and switching functions; All networking devices come with a default IOS.

9. Cisco IOS is stored in Flash, which is Non-volatile storage (data not lost when electrical power is lost). Data can be changed or overwritten as needed. It can be used to store multiple versions of IOS. When run, the IOS is copied from flash to RAM. Quantity of flash and RAM memory determines IOS that can be used.

10. The major functions performed or enabled by Cisco routers and switches are :

• Security • Routing • QoS • Addressing • Managing Resources • Interface

11. How many possible paths are there for data to flow from A to C?
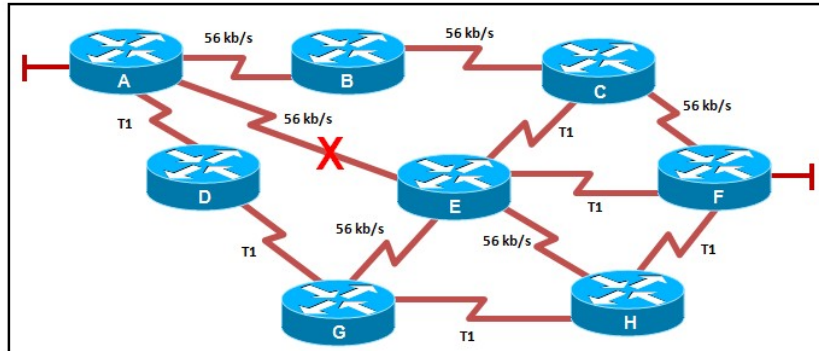
12. Routing is the process of selecting best paths in a network. Usually there are many paths in a network.

13. Cisco devices have no displays built in. To access and interact with them, we need to connect them to video display units.

14. Cisco devices are usually configured from a CLI.

15. The most common methods to access the CLI environment are:
    a. Console Port Method
   Here, the device is accessible even if no networking services have been configured (out-of-band). A special console cable is needed. It allows configuration commands to be entered. It should be configured with passwords to prevent unauthorized access. The device should be located in a secure room so console port cannot be easily accessed.

Out-of-band means 'outside normal band'. Out-of-band access allows you to see your equipment without network connections. It provides you with a backup path in case of network communication failure. For instance, an equipment operates on LAN. When network is down, you can use your smartphone to access the equipment.

The device shown is a Cisco router. It is connected to a laptop using a rollover RJ45 cable. The purpose is to use CLI on the laptop to configure the router.	
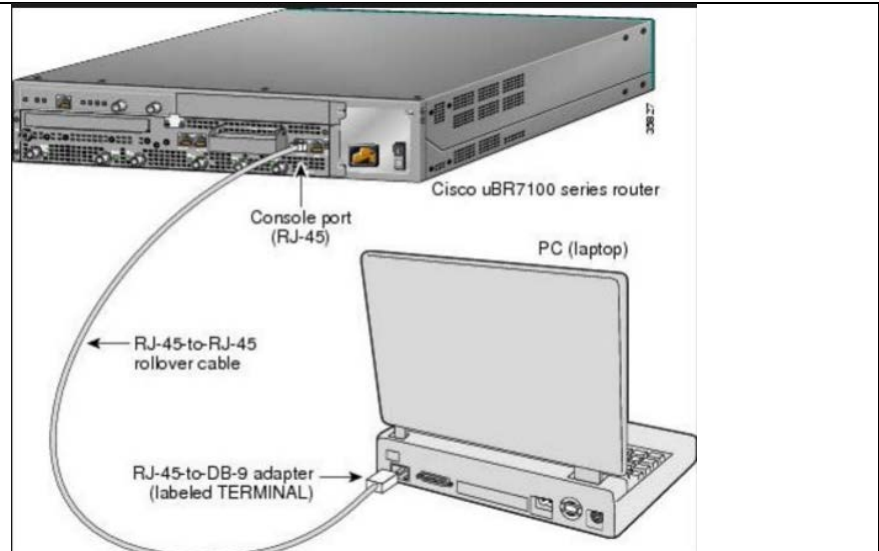
b. Telnet or SSH (Secure SHell) Method (remote)
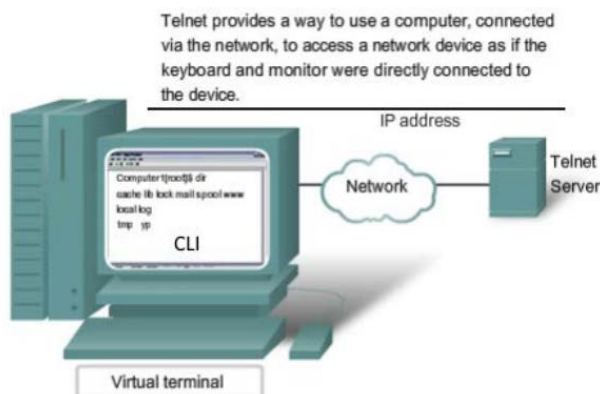
SSH Remote login is similar to Telnet, but it utilizes more security, stronger password authentication and uses encryption when transporting data.

c. AUX port Method (remote)

AUX stands for auxilliary

For this method, a dial-up modem is connected to Aux port of the Cisco device. The modem uses the telephone line for access. Configuring of network services is not required. It can also be used like console port – connect directly to a PC/laptop. Out-of-band connection is available.

16. Terminal emulation is the ability to make one computer terminal appear to look like another, usually older type, of terminal. For example, a terminal emulation software is needed on Windows 10 to display a program that runs on Windows 3.1

Cisco Command Modes

17. IOS provides group of commands used for monitoring, configuring and maintaining cisco devices. For security and easy administration, IOS commands are divided in the set of different command modes. Each command mode has its own set of commands. Which commands are available to use, depends upon the mode you are in.

18. Classified under Primary Modes - User EXEC Mode and Privileged EXEC Mode
Classified under Other Modes - Global Configuration Mode • Interface Configuration Mode • Sub Interface Configuration Mode • Setup Mode • ROM Monitor Mode

19. The EXEC mode is also known as the View-only Mode.

20. The Privileged EXEC Mode allow ALL monitoring commands.

21. The 'enable' command switched from EXEC to Privileged EXEC mode. The 'disable' command switches back to EXEC mode.

22. 'switch>' prompt means device (a switch) is in EXEC mode.

23. 'switch#' prompt means device (a switch) Is in Privileged Mode.

24. 'switch(config)#' prompt means device (a switch) is in Global Configuration Mode.

25. 'router>' prompt means device (a router) is in EXEC mode.

26. 'router #' prompt means device (a router) Is in Privileged Mode.

27. 'router (config)#' prompt means device (a router) is in Global Configuration Mode.