TERM - 2 CCNA Assignment

Module 7 : (Network Fundamentals)

1) A network topology is the physical and logical arrangement of nodes and connections in a network.
2) TCP/IP is a two-layer protocol,

- The transport layer (TCP) responsible for reliable end-to-end communication.
- The Internet layer (IP) accountable for routing packets from the host to the host.
- At the transport layer, TCP provides a reliable byte-stream service to applications.

3) lan and man network

- LANs connect users and applications in close geographical proximity (same building).

- WANs connect users and applications in geographically dispersed locations (across the globe).

4) Switches may be operated by process variables such as pressure, temperature, flow, current, voltage, and force, acting as sensors in a process and used to automatically control a system.
5) "Network Devices" is a broad term that encompasses a range of communication equipment including hubs, switches, routers, bridges, gateways, load balancers, modems, repeaters, and more.
6) Straight through cable

- Crossover cable
- Rolled cable

7) A network host is a computer or other device connected to a computer network.
8) IEEE 802.3 frames have a fixed header size of 14 bytes and a variable payload size of up to 1492 bytes.
9) Fiber optic modules can be divided into single-mode (SM) fiber optic modules and multi-mode (MM) fiber optic modules according to fiber types.

- The single-mode optical fiber SMF fiber diameter of 9 / 125μm; multi-mode fiber MMF fiber diameter of generally 50 / 125μm or 62.5 / 125μm.

10) LANs use local connections like ethernet cables and wireless access points.

- WANs use wide area connections like MPLS, VPNs, leased lines, and the cloud.

11) ARP is used to resolve IP addresses to MAC addresses for communication on the local network, and ICMP provides feedback about the status of the network.

12) Components

- Router
- Switch
- NIC
- Hub
- Server
- Bridge
- Client
- Cable
- Repeater

13) Encapsulation adds information to a packet as it travels to its destination.

- Decapsulation reverses the process by removing the info, so a destination device can read the original data.

14) Network segmentation is an architectural approach that divides a network into multiple segments or subnets, each acting as its own small network.

15) Flow control and acknowledgment

- Stop-and-wait flow control is the simplest form of flow control.
- In this method the message is broken into multiple frames, and the receiver indicates its readiness to receive a frame of data. The sender waits for a receipt acknowledgement (ACK) after every frame for a specified time (called a time out).

16) The Department of Defense (DoD) model is basically a condensed version of the OSI model—it's composed of four, instead of seven, layers:

- Process/Application layer

- Host-to-Host layer
- Internet layer
- Network Access layer

17) Identify layer

- Layer 1 - Physical layer
- Layer 2 - Data link layer
- Layer 3 - Network layer
- Layer 7 - Application layer

18) CSMA CD detects collisions after they occur and tries to recover from them. CSMA CA avoids collisions before they occur by using a handshake mechanism.

19) You will have to use a straight-through cable for the hosts to communicate with each other.

20) A switch is operating at Layer 2 if it is simply carrying the different subnets on different VLANs, and not doing any routing.

- The switch will operate at Layer 3 if it is then performing the routing between those subnets.

21) C

22) Spanning Tree Protocol (STP) is a Layer 2 protocol that runs on bridges and switches. The specification for STP

is IEEE 802.1D. The main purpose of STP is to ensure that you do not create loops when you have redundant paths in your network.

23) Unicast traffic goes to a single destination host.

- Broadcast traffic goes to all hosts on the subnet.
- Multicast traffic goes to multiple interested hosts.

24) Content-addressable memory is a chip that provides fast table lookups, most notably in network routers and switches.

25) Ternary content-addressable memory (TCAM) is a specialized type of high-speed memory that searches its entire contents in a single clock cycle.

26) Show mac-address-table command in privileged EXEC mode.