OSI Layer 7 Application	Is the end user's access to the network; its purpose is to provide a set of utilities for application programs.	HTTP WWW FTP	
OSI Layer 6 Presentation	Formats the data for presentation to the user. Accommodates different interfaces on different computers so the application program need not worry about them.	GIF MPEG JPEG ASCII	
<u>OSI Layer 5</u> Session	Responsible for managing and structuring all sessions, such as logging onto circuit equipment or transferring files.	NetBIOS ASP PPTP	
<u>OSI Layer 4</u> Transport	Deals with end-to-end issues, such as procedures for entering and departing from the network.	TCP / UDP	
<u>OSI Layer 3</u> Network	Performs routing, it determines the next computer system the message should be sent to.	IP	Routers
<u>OSI Layer 2</u> Data Link	Manages the physical transmission circuit in layer 1 and transforms it into a circuit that is free of transmission errors as far as above are concerned	Ethernet frame (LAN) Frame Relay (WAN) T1 (MAN)	Ethernet NIC Switches
OSI Layer 1 Physical	Concerned primarily with transmitting data bits over a communication circuit, defines the rules by which ones and zeros are transmitted, and the physical format of the cables and connectors used.	Cat5 IEEE 802.3 Bluetooth	COAX Fiber Twisted Pair Cables

Layer	Description	Protocols	Hardware
<u>Application</u>	Does the function of the Application, Presentation, and Session Layer of the OSI model. Provides application software for network user communication	HTTP FTP SSH DHCP	
<u>Transport</u>	Links the application layer to the network layer, transmits data/packets back and forth	TCP UDP	
<u>Internet</u>	Performs routing for packets, determines the address of the destination	IP IPSec ICMP	Routers Switches
<u>Link</u>	Responsible for moving a message from one computer to the next computer in the network path, and the physical connection between sender and receiver in a circuit	T1 Frame Relay Ethernet Frame	Cat5 NIC COAX

Questions:

- 1. By OSI layer, which group set the standards for each OSI Layer?
- _
- 2. Describe, by device, how information from your computer's keyboard at home gets out to the Internet. Specifically, briefly describe each device and its function.
 - Keystrokes are recorded and passed into an application that uses protocols (HTTP) on the Application Layer like a web browser. The message/command is translated into a packet and passed to the Transport Layer. It is then placed into another PDU using TCP protocol (TCP Segment) and is passed into the Network Layer. We've reached the router, here it places the TCP Segment into an IP packet and determines the destination of the data/request that the user is making. The packet is moved into the Data Link Layer, which formats the data and determines the media (Ethernet frame) to transport the packet to its destination. Finally, in the Physical Layer, the Ethernet frame is taken and sent as bits in a series of electrical pulses through cables to the destination on the Internet.
- 3. Go to speedtest.net and test your Internet connection speed. Report that on your assignment.
 - Comcast is my ISP; 28ms Ping, 11.15Mbps Download Speed; 6.20Mbps Upload Speed;

Vocabulary:

ANSI—American National Standards Institute, the coordinating organization for the US national systems of standards for both technology and nontechnology

Backbone Network (BN)—A large network to which many networks within an organization are connected **Broadband**—term that refers to a specific type of data transmission that is used by a circuit (e.g. DSL)

Circuit—the path over which the voice, data, or image transmission travels (twisted pair, coax, fiber optic) **Client**—the input-output hardware device at the user's end of a communication circuit

Data Link Layer—manages the physical transmission circuit in layer 1 and transforms it into a circuit that is free of transmission errors as far as above are concerned

Extranet—using the Internet to provide access to information intended for a selected set of users, not the public at large

FCC—Federal Communications Commission, regulates interstate telephone businesses in the US **Firewall**—hardware or software that filters packets flowing in and out of a network

IEEE—Institute of Electrical and Electronics Engineers, professional society in the US whose Standards Association develops standards

IETF—Internet Engineering Task Force,

ITU—International Telecommunications Union, technical standard-setting organization of the UN

Internet—the information superhighway, a network that spans the world, linking more than 20 million users **Intranet**—an internal network using Internet Protocols so that information may be accessed via browser not available to the public at large

ISP—Internet Service Provider, communications company that allows Internet connection to the world **KB**—Kilobyte

Kb—Kilobit

LAN—Local Area Network, a group of computers located in the same general area

Logical—users view of the way data or systems are organized or used

Modem—a device for performing necessary signal transformation between terminal devices and communication circuits

Open System Interconnection Reference Model—OSI a frame work of network standards for communication **Physical Layer**—transmit bit over a communication circuit

RFC—Request For Comment, a proposed standard for the Internet on which anyone in the world is invited to comment

Router—device that connects two similar networks having the same network protocols

Switch—connects more than two LAN segments that use the same data link and network protocols

VPN—Virtual Private Network, hybrid network that include both public and private facilities

WAN—Wide Area Network, connects BNs and MANs

Wireless Access Point—a router that enables wireless connections through Wi-Fi to connect to the Internet