**BCT 2204**

**NETWORK SYSTEMS AND ADMINISTRATION**

**SCT212-0705/2022**

**PRECIOUS NDULU**

**QUESTION: In 300 words, write a write-up on the difference between the 7-layer OSI reference model and the TCP/IP model.**

**The Open Systems Interconnection (OSI) model** is a conceptual framework that has seven layers which computer systems use to communicate over a network.

**TCP/IP** stands for Transmission Control Protocol/Internet Protocol and makes it possible for devices connected to the internet to communicate with one another across networks.

Similarities

Both models are logical and layered.

Both models use encapsulation.

Both models support connection-oriented and connectionless services.

Both models can be used to transport data over a variety of physical media.

Both models support a variety of network applications.

Both models are constantly evolving.

**Difference between the 7-layer OSI reference model and the TCP/IP model**

**OSI reference model**

The seven layers of the OSI reference model are:

* **Application Layer**: This is where user applications like web browsers and email clients communicate with the network.
* **Presentation Layer:** It deals with data formatting and translation, making sure information can be understood by different systems.
* **Session Layer**: Responsible for creating, managing, and terminating communication sessions between devices.
* **Transport Layer**: Ensures data is sent reliably from the source to the destination and performs error correction when needed.
* **Network Layer**: Manages the routing of data packets between different networks and handles logical addressing.
* **Data Link Layer**: Focuses on framing data into packets, detecting and correcting errors, and controlling media access.
* **Physical Layer**: This is where the actual hardware comes into play, handling the raw transmission of data over physical mediums like cables or wireless signals.

**TCP/IP model**

The four layers of the TCP/IP model are:

* **Link layer**: is responsible for transmitting packets over the physical medium and for detecting and correcting errors in the transmission of packets.
* **Internet layer**: is used for routing packets between different networks.
* **Transport layer**: is used for providing reliable end-to-end communication between devices.
* **Application layer**: is the layer that is closest to the user and is responsible for providing network services to applications, such as web browsing and file transfer.

- In the TCP/IP model, the OSI Presentation and Session layers are combined in the Application layer.

- Unlike the OSI model, the TCP/IP model doesn't have a separate physical layer, as it is built into the hardware.

- The OSI model is used for certifications, while the TCP/IP model is used for making the internet work.

- The OSI model has seven layers, making it more complex, while the TCP/IP model has just four making it simple.

- OSI Model Is not widely implemented in practice while TCP/IP Model is used for most modern networking protocols and widely implemented.

- OSI Model is Less compatible with protocols while TCP/IP Model is highly compatible with real-world internet technologies