**SCT 212-0192/2022 NSA Assignment**

**COMPARISON BETWEEN TCP/IP AND OSI MODELS**

**Similarities:**

i. Layered Structure: Both models use a layered approach, where each layer has specific responsibilities and communicates with adjacent layers.

ii. Layer Interactions: Both models adhere to the idea of layers providing services to the layer above and relying on services from the layer below.

iii. Encapsulation of data: Both models, have their data encapsulated with layer-specific headers before transmission.

iv. Using Protocols: Both models involve the use of protocols for network communication.

**Differences:**

i. Number of Layers:

- OSI Model: Comprises of seven layers, which are; Physical, Data Link, Network, Transport, Session, Presentation and Application.

- TCP/IP Model: Comprises of four layers, which are; Link, Internet, Transport and Application. Though with variations in the number of layers depending on the representation coming in at four or five.

ii. Protocol Association:

- OSI Model: Offers a theoretical framework and is not directly linked to specific protocols.

- TCP/IP Model: It is closely connected to the TCP/IP suite, featuring protocols like IP, TCP and UDP.

iii. Historical Origin:

- OSI Model: Developed by the International Organization for Standardization (ISO) for conceptual understanding.

- TCP/IP Model: Originated from the U.S. Department of Defense for practical use in early internet development.

iv. Layer Overlap:

- OSI Model: Its layers are distinctly separated with minimal overlap.

- TCP/IP Model: It has flexibility with some overlap in its layer functions.

v. Practical Application:

- OSI Model: It’s less commonly used in practical networking but serves educational and reference purposes.

- TCP/IP Model: It’s the foundation of the modern internet and widely used in real-world networks.

vi. Naming the Layers and their Functions:

- Layer names and functions differ between the two models, with some similarities in functionality but different naming conventions.