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**SCT212-0727/2022**

**NETWORK DESIGN AND ADMINISTRATION**

**ASSIGNMENT 1**

1. **In 300 word, write up the difference between the seven layers of the OSI model and the TCP/IP model**

The OSI model compromises of seven distinct layers, each, representing a specific network function. These layers include: physical layer, data link layer, network layer, transport layer, session layer, presentation layer and application layer. Each layer focuses on a particular aspect of network communication and is essential for interoperability and modularity. This hierarchical approach offers clarity in network design but can be perceived as some theoretical, as it doesn’t directly map to real-world networking technologies,

In contrast, the TCP/IP model is simpler and more practical, as it condenses the OSI models seven layers into four main layers: Network interface (which is equivalent to OSI’s physical and Data link layers), internet(which is equivalent to OSI’s model Network layer), Transport( which is equivalent to transport layer in OSI’s model)and application( combining OSI’s session, presentation and application layers). The TCP/IP model is tailored for the internet and is extensively used in practice, making it more applicable for real-world network design and troubleshooting.

The origins of both models also brings about a difference. The OSI model was developed by the international organization for standardization(ISO) to provide a comprehensive and universally applicable framework. In contrast, the TCP/IP model emerged from the actual implementation of the internet and was later formalized.

The OSI model servers as a theoretical basis for understanding network concepts, while the TCP/IP model is practical for implementing and managing modern networks, particularly the global internet.

OSI is often used for educational and conceptual purpose, whereas TCP/IP is the basis for practical network design and operation.

OSI provides a more detailed and structured framework, while TCP/IP is widely used in internet and networking implementations.

The presentation and session layers in OSI are integrated into the Application layer in TCP/IP.

**2.similarities between the seven layer OSI model and the TCP/IP model**

Layered approach: Both models use a layered approach to represent network functionality, making it easier to understand and troubleshoot network operations.

Data Encapsulation: Both models involve data encapsulation, where data is wrapped in headers and trailers as it moves through the layers.

Transport Layer (OSI) and Transport Layer (TCP/IP): Both models have a layer that is responsible for end to end communication, including error detection, flow control.