UNIT: BIT 2204 NETWORK SYSTEMS&ADMINISTRATION

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REG NO: SCT212-0726/2022

ASSIGNMENT ONE

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

The OSI (Open Systems Interconnection) reference model and the TCP/IP (Transmission Control Protocol/Internet Protocol) model are two of the most well-known networking frameworks used to understand and standardize how different network protocols interact with one another. While both models serve a similar purpose, they have some key differences in terms of structure, development history, and practical implementation.

The OSI model is a theoretical framework that consists of seven layers, each of which represents a specific functionality needed for computer networking. These layers, from bottom to top, are the Physical Layer, Data Link Layer, Network Layer, Transport Layer, Session Layer, Presentation Layer, and Application Layer. The OSI model was developed by the International Organization for Standardization (ISO) and was intended to be a universal standard for network communication.

On the other hand, the TCP/IP model is a more practical and widely used networking framework that was developed by the United States Department of Defense as part of the ARPANET project. The TCP/IP model has only four layers, which are the Link Layer, Internet Layer, Transport Layer, and Application Layer. The Link Layer and Internet Layer of the TCP/IP model roughly correspond to the Physical Layer, Data Link Layer, and Network Layer of the OSI model, while the Transport Layer is common to both models. The Application Layer in the TCP/IP model encompasses the Session Layer, Presentation Layer, and Application Layer of the OSI model.

One of the key differences between the two models is their level of abstraction. The OSI model is more theoretical and was designed to provide a comprehensive framework for understanding and developing network protocols. In contrast, the TCP/IP model is more practical and was designed for the specific requirements of the ARPANET project. As a result, the TCP/IP model is more widely used in real-world applications, while the OSI model is mainly used for educational purposes and as a reference framework.