NETWORK SYSTEM AND ADMINISTRATION

ASSIGNMENT 1

SCT212-0463/2022

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

Similarities between the TCP/IP and OSI models include the following: Both the models are based upon layered architecture.Protocols are defined in a layer-wise way.Both models convert the raw data into packets and help them reach their destination node.Each model has different layers with a specific function. This helps in identifying issues if any failure occurs.The Physical and Data Link layers of the OSI model correspond to the Network Access layer of the TCP/IP model.The Application, Presentation, and Sessions layers of the OSI model correspond to the Application layer of the TCP/IP model.Both models have the network layer and the transport layer.

OSI stand s for Open Systems Interconnection while TCP/IP stands for Transmission Control Protocol/ Internet Protocol. The OSI model is made up of seven layers. The biggest difference between the two models is that the OSI model segments multiple functions that the TCP/IP model groups into single layers. This is true of both the application and network access layers of the TCP/IP model, which contain multiple layers outlined within the OSI model.The TCP/IP model is made up of four layers compared to OSI which has 7 layers.

The OSI model has the following layers:physical, data link,network, transport, session, presentation and application. TCP/IP has the following layers: application layer, transport layer, network access layer and internet..This is a significant difference because it can make it more difficult to troubleshoot issues or enhance performance when you are using the TCP/IP model. With the OSI model, for example, you can focus specifically on the application layer, presentation layer, or session layer to figure out why data is not coming out the way you expect.

In terms of reliabilty, the TCP/IP model is more reliable than TCP/IP model.The OSI model and the TCP/IP model both serve as essential tools for the understanding and organizing computer networks. However, they differ in terms of the number of layers, real-world adoption, association with specific protocols, and practicality. Ultimately, the TCP/IP model’s widespread use and direct connection to the internet have made it the more dominant and influential framework in the field of computing networking. Nevertheless, the OSI model remains valuable for educational and theoretical discussions, as it provides more comprehensive and vendor-neutral view of the network architecture.

Other differences include the following: In the OSI model replacement of tools and changes can easily be done. However, in the TCP/IP model replacing of tools is not as easy compared to OSI model.The transport layer in the OSI model is only connection-oriented, while the TCP/IP model is both connection-oriented and connectionless.OSI follows a vertical approach, while TCP/IP follows a horizontal approach.