**BIT 2204: NETWORK SYSTEMS & ADMINISTRATION**

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**DIFFERENCE BETWEEN THE 7-LAYER OSI MODEL AND THE TCP/IP MODEL**

OSI refers to -open systems interconnection while TCP refers to- transmission control protocol. They are both frameworks for understanding and organizing network protocols for communication purpose and have their similarities and differences. While both models serve as guidelines for network architecture, they exhibit distinct differences in their structure and practical applications

Their construction is similar as both have layers. However OSI has seven layers namely: Physical, Data Link, Network, Transport, Session, Presentation, and Application. Each layer has its own specific functions making OSI model more of theoretical as it is highly comprehensive. However, the OSI model is often considered somewhat rigid and complex, which has limited its practical implementation

Whereas TCP has four layers namely; Network Interface, Internet, Transport and application. The TCP model is closer to the actual architecture of the internet. This model is used extensively in practice and serves as the foundation for the modern internet. The TCP/IP model is more pragmatic and directly maps to the protocols and technologies commonly used. Such as IP, TCP and UDP.

Another similarity is that in both the upper layer for each model is the application layer, which performs the same task in each model but may vary according to the information each receives. The functions performed in each model are also similar because each uses a network and transport layer to operate. The OSI and TCP layer are mostly used to transmit data packets, however the difference is they each use different means and paths to reach their destinations

OSI uses three layers; application, presentation, session to define the functionality of the upper layers, while TCP/IP uses only the application layer. OSI uses two separate layers; physical and data link to define the functionality of the bottom layers, while TCP/IP uses only the link layer OSI uses the network layer to define the routing standards and protocols, while TCP/IP uses the internet layer

The above are the key major differences however which is in development and execution other differences include:

* Both use bytes however OSI header is 5 bytes whereas TCP header size is 20 bytes
* OSI follows vertical approach while TCP follows a horizontal approach
* While both are connection oriented TCP model is both connection oriented and connectionless
* OSI model is developed by International standard organization (ISO) whereas TCP ,model is developed by ARPANET (Advanced research project agency network)

REFERENCES:

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