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## Network Fundamentals

1. What is the TCP/IP model?

   *Answer*

   The TCP/IP model, also known as the Internet Protocol Suite, is a set of communication protocols used for the internet and similar networks. It provides end-to-end data communication specifying how data should be packetized, addressed, transmitted, routed, and received. The model is divided into four layers, each with specific functions:Link Layer (Network Interface Layer),Internet Layer (Network Layer),Transport Layer and Application Layer.

2. Compare TCP/IP model with the OSI model.

   *Answer*

   The TCP/IP model is often compared with the OSI (Open Systems Interconnection) model, which has seven layers. The OSI model includes the Application, Presentation, Session, Transport, Network, Data Link, and Physical layers. The TCP/IP model combines the functions of the OSI's Application, Presentation, and Session layers into its Application layer, and the functions of the Data Link and Physical layers into its Link layer. In summary, the TCP/IP model typically has four layers whereas the OSI model has seven layers.

3. What is the difference between TCP and UDP?

   *Answer*

   1. TCP is connection-oriented, establishing a connection through a three-way handshake before data transfer, while UDP is connectionless and sends data without establishing a connection.
   2. TCP ensures reliable data transfer with error checking, acknowledgments, and retransmission of lost packets, whereas UDP is unreliable with no guarantee of delivery, order, or error correction.
   3. TCP has more overhead and is slower due to its reliability features, while UDP has less overhead and is faster, suitable for real-time applications where speed is crucial.
   4. TCP is used for applications where reliability and order are critical, such as web browsing and email, while UDP is used for applications that require speed and can tolerate some data loss, such as video streaming and online gaming.

4. Which protocol is being used during Youtube video streaming? ***UDP.***