Engineering Assignment Questions and Answers

Subject: Computer Networks

1. Explain the OSI Model with its layers and functions.
   The OSI (Open Systems Interconnection) model is a seven-layer framework for network communication.
   - Physical: Handles raw bit transmission.
   - Data Link: Manages error detection and framing.
   - Network: Deals with routing and addressing.
   - Transport: Ensures end-to-end communication.
   - Session: Manages connections between applications.
   - Presentation: Translates and encrypts data.
   - Application: Provides network services to applications.

2. Differentiate between TCP and UDP.
   - TCP (Transmission Control Protocol): Reliable, connection-oriented, ensures ordered and error-free dat
   - UDP (User Datagram Protocol): Unreliable, connectionless, faster, used for real-time applications like s

3. What is subnetting, and why is it important?
   Subnetting divides a large IP network into smaller sub-networks to improve security, manageability, and r

4. Explain the concept of IP addressing and its classes.
   IP addressing provides unique identifiers for devices on a network. The IPv4 classes are:
   - Class A: 1.0.0.0 to 126.255.255.255 (Large networks)
   - Class B: 128.0.0.0 to 191.255.255.255 (Medium networks)
   - Class C: 192.0.0.0 to 223.255.255.255 (Small networks)
   - Class D: 224.0.0.0 to 239.255.255.255 (Multicasting)
   - Class E: 240.0.0.0 to 255.255.255.255 (Reserved for future use)

5. What is DNS, and how does it work?
   DNS (Domain Name System) translates human-readable domain names (e.g., google.com) into IP addre