

Computer Networks – Assignment

1. Explain the OSI Model

Describe all seven layers of the OSI model. Provide real-world examples for each layer.

2. TCP vs UDP

Compare TCP and UDP in detail. Mention reliability, speed, header size, and real-world applications.

3. IP Addressing

Explain the difference between IPv4 and IPv6. Provide examples of valid IP addresses and discuss subnetting briefly.

4. Routing Protocols

Differentiate between distance-vector and link-state routing protocols. Explain RIP and OSPF.

5. HTTP vs HTTPS

Explain how HTTPS provides security. Discuss TLS handshake steps.

6. Network Topologies

Describe bus, star, mesh, and ring topologies. Mention advantages and disadvantages.

7. Socket Programming

Explain how client–server communication happens. Provide a high-level description of socket creation steps.

Instructions:

- Write all answers in your own words.
- Diagrams are encouraged wherever needed.
- Submit the assignment in PDF format.