

# 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.