

# CN-IMPO

## Module 5 (5 Marks Each)

### 1. **Domain Name Server (DNS):**

Elaborate on the core functionalities of DNS, its role in internet architecture, and how it resolves domain names to IP addresses. Include examples of common DNS records and their significance.

### 2. **Assigning Automatic IP Addresses:**

Explain the process and protocols involved in assigning IP addresses automatically to devices within a network. Discuss the advantages and potential challenges of using such mechanisms.

### 3. **DNS and DLS Servers:**

Analyze the combined functionality of DNS and DLS servers in network environments. Highlight scenarios where these servers work in tandem and the practical implications of their integration.

### 4. **Telnet Protocols in Application:**

Discuss the application of Telnet protocols in modern computing environments, focusing on their use, advantages, limitations, and reasons for declining popularity compared to SSH.

### 5. **HTTP vs. HTTPS:**

Compare and contrast HTTP and HTTPS in terms of functionality, security features, performance impact, and practical applications. Discuss the role of SSL/TLS in this context.

### 6. **Public Key vs. Private Key Cryptography:**

Differentiate between public and private key cryptography, illustrating their roles in encryption and decryption processes. Provide examples to explain their significance in secure communication.

### 7. **DNS vs. DHCP:**

Outline the differences between DNS and DHCP protocols, emphasizing their distinct purposes in network communication. Explore how these two protocols complement each other in managing networks efficiently.

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## Module 4 (5- and 12-Marks Questions)

### 1. **Types of IP Addressing:**

Define and compare the two primary types of IP addressing (static and dynamic) with detailed explanations. Incorporate diagrams or charts to illustrate their use cases and impact on network management.

### 2. **IPv4 vs. IPv6:**

Discuss the key differences between IPv4 and IPv6 addressing schemes. Include an in-depth analysis of their structures, addressing capacity, and suitability for modern internet requirements.

### 3. **Numericals in Networking Layers:**

Solve numerical problems related to network addressing and subnets for both IPv4 and IPv6. Provide step-by-step explanations to determine network IDs, broadcast addresses, and usable host ranges.

### 4. **Network ID Identification:**

Analyze the impact of subnet masks on network ID identification. Explore nuanced scenarios where varying subnet mask lengths influence network segmentation and design.

### 5. **Types of Routing Algorithms:**

Explain the three primary types of routing algorithms—distance vector, link-state, and hybrid routing. Include detailed examples and diagrams illustrating their functioning in real-world networks.

### 6. **Port Addressing vs. Socket Addressing:**

Differentiate between port addressing and socket addressing in network communication. Provide 4-5 examples of practical scenarios where each type is utilized effectively.

### 7. **Congestion Control Mechanisms:**

Describe congestion control mechanisms in networking. Discuss how these mechanisms ensure optimal data transmission and address challenges like network overload.

### 8. **TCP vs. UDP in the Transport Layer:**

Compare TCP and UDP protocols in terms of reliability, speed, and application use cases. Highlight scenarios where each protocol is more advantageous.