

1. mention any two function of application layer.

ans • Provides user interfaces and support for services like email and file transfer.

• Enables network services like HTTP, FTP, SMTP and DNS.

2. What do you mean by Proxy Server?

ans A Proxy Server is an intermediary between a client and the internet, which helps to filter requests, enhance security, and improve performance.

3. What is the significance of WWW in internet?

ans The World Wide Web (WWW) allows users to access and share information over the internet using web browsers via hyperlinks and web pages.

4. Differentiate between POP3 and SMTP.

• POP3 (Post office Protocol 3): Used to receive emails from a server.

• SMTP (Simple Mail Transfer Protocol): Used to send emails to a server or between servers.



## Sec - B

1. What is congestion? Explain the problem and prevention principles.

Ans • Congestion occurs when the network is overloaded with traffic, causing packet loss and delays.

• Problem: It leads to performance degradation and lower throughput.

• Prevention Principles: Include traffic shaping, congestion avoidance algorithms (e.g., RED), and increasing network resources.

2. Draw the schematic diagram of IPv4 header and explain.

Ans The IPv4 header is a fixed length 20-byte structure that provides essential information for routing and delivery of IP packets across the network.

IPv4 header fields are:

~~Field~~ Size

- |                          |                          |
|--------------------------|--------------------------|
| • Version                | • Time to Live (TTL)     |
| • Header length          | • Protocol               |
| • Type of Services (TOS) | • Header checksum        |
| • Total length           | • Source IP Address      |
| • Identification         | • Destination IP Address |
| • Flags                  | • Options (Optional)     |
| • Fragment offset        | • Padding (Optional)     |
|                          | • Data (Payload)         |

## • IPv4 Header :-

Version (4 bits)	Header length (4 bits)	Type of Service (8 bits)	Total length (16 bits)		
Identification (16 bits)			D f	D m f	Fragment offset (13 bits)
Time to live (8 bits)	Protocol (8 bits)	Header checksum (16 bits)			
Source IP Address (32 bits)					
Destination IP Address (32 bits)					
Options (0-40 bytes)					
Data					

## Sec - c

### 1. Explain DNS and SMTP.

• DNS (Domain Name System): Translates human-readable domain names (like: `www.example.com`) into IP addresses.

• SMTP (Simple Mail Transfer Protocol): Used for sending email messages between servers or from a client to a server.

### 2. Explain remote login and WWW.

• Remote login: Allows a user to access a computer over a network remotely, typically using Telnet or SSH.



WWW (World wide web): A system of interlinked hypertext documents accessed via web browser forming a major part of internet services.