COMPUTER NETWORKS

UNIT – I

**Introduction:** Uses of Computer Networks, Network Hardware, Network Software: Reference Models (ISO - OSI, TCP/IP).

**Network Layer:** Network Layer Design Issues, Routing Algorithms, Congestion Control Algorithms, Quality of Service

UNIT – II

**Internetworking:** Concatenated virtual circuits, Connectionless internetworking, Tunneling, Internetwork routing, Fragmentation.

**Network layer in the Internet:** IP protocol, IP addresses, Internet control protocols, OSPF, BGP, Internet Multicasting, Mobile IP, IPv6.

**Transport Layer:** The Transport Service, Elements of Transport Protocols, the Internet Transport Protocols: UDP, Internet Transport Protocols: TCP.

UNIT – III

**Network Programming:**

Socket Interface: Sockets, Socket Address, Elementary Sockets, Advanced Sockets, Socket Options, Out of Band Data, Daemon process and Internet SuperServer, IPv4 and IPv6 interoperability. Remote Procedure Calls: Introduction, Transparency Issues and Sun RPC.

UNIT - IV

**Application Layer:** Domain Name System: DNS Name Space, Resource Records, Name Servers. Electronic Mail: Architecture and Services, User Agent, Message Formats, Message transfer and Final Delivery. World Wide Web: Architectural Overview, Static Web Documents, Dynamic Web Documents, HTTP, Wireless Web. Multimedia: Digital Audio, Streaming Audio, Voice over IP, Video on Demand.

UNIT – V

**Network Security:** Cryptography, Symmetric Key Algorithms, Public Key Algorithms, Digital Signatures, Management of Public Keys, Communication Security, Authentication Protocols, Email Security, Web Security.

**Suggested Reading:**

1. Andrew S. Tanenbaurn, Computer Nerworks, Fourth Edition, Pearson Education.

2. W. Richard stevens, Unix Network Programming” Prentice Hall / Pearson Education, 2009.

3. James F. Kurose, Keith W, Ross, Computer Networking, Atop-Down Approach Featuring the Internet, Third Edition, Pearson Education , 2005.

4. William Stallings, Computer Networking with Internet Protocols and Technology, Pearson Education,200