Subject Code : RN2V6

PAPER – VII – COMMUNICATION NETWORKS

UNIT – I

Computer Networks – Applications – Line configuration – Topology – Transmission Modes – Categories of Network: LAN, MAN, WAN – OSI Layer.

Physical Layer: Signals – spectrum – bandwidth of analog / digital signals – signal encoding – DTE-DCE interface – Transmission Media – Multiplexing: FDM, TDM.

Datalink Layer: Error Detection – Error correction – Line discipline Flow Control:Stop – wait protocol and sliding window protocol
Error Control: ARQ Go-back-n ARQ selective-repeat ARQ

Data Link Protocols : Asynchronous protocols – Synchronous Protocol : character oriented - bit oriented protocols – HDLC.

LLC, MAC, PDU

MAN: DQDB-SMDS.

UNIT –II

Network Layer: Circuit switching – packet switching – message switching – Connection oriented and Connectionless services. Routing Algorithms – Congestion Control Algorithms – internetworking – Routers and Switches – Introduction to Firewalls.

UNIT – III

Wide Area Networking : Switching Networks – Circuit Switching Network – Switching concepts – routing in circuit – Control Signaling – Packet Switching - Packet Switching Principles – routing – Congestion Control – X.25 – Frame Relay – Frame relay Protocol Architecture – Frame relay call control – User Data Transfer Network Function – Congestion Control.

UNIT – IV

Protocols: Ethernet – Token Ring – Token Bus – FDDI – Addressing and Frame format – Bridges.
LAN security : Types of threats – Levels of security.
Case Study : Novell Netware
Wireless LAN : need – Components – Receiving Devices – Advantages & disadvantages.

UNIT – V

TCP/IP Networking:

TCP/IP Architecture – Structural overview – Inter networking model – Protocol evolution - Division of functions – Network characteristics – Implementation characteristics – Network addressing and Routing: Datagram Header – IP address space – Basic routing consideration – Hardware addressing – Common interior Gateway Protocols – Internet control Message Protocol.

Transport Layer: Data flow, ports, sockets – user Data gram protocol – Transmission control protocol – TCP Reliable Delivery & Flow control – Applications and Services : Domain name system – Remote Logon – Mail Exchange – File Transfer – Remote Procedure Call – Remote File Access – Security – Window System.

Text Books:

1. For Units – I & II : "Computer Networks" – III edition – Andrew S.Tanenbaum – PHI, 1998.
2. For Unit – III : "William Stallings, "Data and Computer Communication" Prentice Hall of India Pvt. Ltd., New Delhi – 5th Edition, September 2000 (Chapters 8.1 – 87.5, 9.1-9.4,10.1-10.6).
3. For Unit – IV : "Local Area Network" – 5th Edition – S.K.Basandra & S.Jaiswal – Galgotia
4. For Unit – V : TCP/IP Networking" David M.Peterson - McGraw Hill International, 1995.

Reference Books:

1. "Data and Computer Communication" 5th Ed. William Stallings – PHI, 2000.
2. Uyless D.Black, Data Communications and Distributed Networks, 3rd Ed., PHI, 2000.