Computer Network

UNIT I	**Basics of Network & Physical Layer** Data communication, Components, Data representation, Data flow. Performance criteria, topologies, category: LAN. MAN & WAN. OSI layered architecture, TCP/IP protocol suite. Physical Layer: Transmission Media Guided media, Twisted pair, coaxial cable, fiber optics. Unguided media: radio waves, microwaves & infrared waves. Circuit switching network, Packet Network & Virtual Circuit. Connecting Devices: Repeater, Hub, Switch, Bridge, Router and Gateway.	**8**
UNIT II	**Data Link Layer** Error Handling: types of error, Block Coding, Hamming distance, Linear Block Codes, Cyclic Codes. Flow control: Stop & wait, Sliding Window Protocols: Designing and functioning of Go-Back-N, Selective Repeat method. Random Access protocol ALOHA, CSMA, CSMA/CD. Channelization: Frequency Division Multiple Access, Time Division Multiple Access, Code Division Multiple Access. Overview of Fast Ethernet: FDDI.	**7**
UNIT III	**Network Layer** IPv4 Addressing, Classfull addressing, net-id, hosted, mask, subnet. Classless addressing, subnetting using classless addressing. Datagram formats for IPv4 and IPv6 addresses. Address mapping protocols: ARP and RARP. Packet delivery and packet forwarding. Unicast routing: Distance vector routing-RIP and Link state routing-OSPF. Path vector routing-BGP	**10**
UNIT IV	**Transport Layer** Process to process delivery, Connectionless versus connection oriented services. User data gram protocol, frame format of datagram. Transmission control protocol: TCP services, TCP features, Segment format. Congestion Control: Open loop techniques (Retransmission, window and acknowledgement policies.), Closed loop techniques (Back pressure and choke packet).	**8**
UNIT V	**Quality of Service** Flow characteristics: Reliability, Delay, Jitter and bandwidth. Traffic Scheduling: FIFO technique, Weighted fair queuing. Traffic shaping: Leaky bucket and token bucket. Application Layer: Domain name System: Name space, Domain Name space, Distribution of domain name space. DNS in internet, Resolution. Electronic Mail: SMTP, IMAP, POP3. File Transfer: FTP. Telnet, WWW: architecture, Client, URL, Cookies.	**8**

References:

1. Forouzen, **"Data Communication and Networking",** TMH
2. A.S.Tanenbaum**, "Computer Networks",** 3rd Edition,Prentice Hall India,1997
3. W. Stallings, **"Data and Computer Communication",** Macmillan Press,1989.