Unit I

Chapter 1 : Introduction to Computer Networks

1-1 to 1-37

Syllabus : Definition, **Types of Networks :** Local Area Networks (LAN), Metropolitan Area Networks (MAN), Wide Area Networks (WAN), Wireless networks, Networks software, Protocol, Design issues for the network layers. **Network Models :** The OSI reference model, TCP/IP model, Network topologies, Types of transmission medium. **Network Architectures :** Client-Server, Peer to Peer, Hybrid.

Syllabus : Network Devices : Bridge, Switch, Router, Gateway, Access point. **Line Coding Schemes :** Manchester and Differential Manchester encodings, Frequency Hopping (FHSS) and Direct Sequence Spread Spectrum (DSSS).

Syllabus : Introduction, Functions. **Design issues :** Services to network layer, Framing. **ARQ strategies :** Error detection and correction, Parity bits, Hamming codes (11/12-bits) and CRC, **Flow control protocols :** Unrestricted simplex, Stop and wait, Sliding window protocol, **WAN connectivity :** PPP and HDLC.

Unit II

Syllabus : MAC sub layer : Multiple access protocols : Pure and slotted ALOHA, CSMA, WDMA, CSMA/CD, CSMA/CA, Binary exponential Back-off algorithm, **Introduction to Ethernet :** IEEE 802.3, IEEE 802.11 a/b/g/n and IEEE 802.15 and IEEE 802.16 standards.

Syllabus : Network Layer protocols : ARP, RARP, IGMP. **Network Routing and Algorithms :** Static routing, Dynamic routing, Distance vector routing, Link state routing, Path Vector. **Routing Protocols :** RIP, OSPF, BGP, MPLS, **Routing in MANET :** AODV, DSR.

Syllabus : Process to Process Delivery, Services, Socket Programming. **Elements of Transport Layer Protocols** : Addressing, Connection establishment, Connection release, Flow control and buffering, Multiplexing, Congestion Control. **Transport Layer Protocols :** TCP and UDP, SCTP, RTP, Congestion control and Quality of Service (QoS), Differentiated services, TCP and UDP for Wireless networks.

Unit V

Syllabus : Introduction, Web and HTTP, Web Caching, DNS, **Email :** SMTP, MIME, POP3, Webmail, FTP, TELNET, DHCP, SNMP.

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