

# **AMIT-19 COMPUTER NETWORKS**

## **UNIT-1 EVOLUTION OF COMPUTER NETWORKS**

- 1.1 Types of Networks: Broadcast and Point-to-point, LAN, MAN, WAN, Wireless networks.
- 1.2 Protocols & Standardization, ISO/OSI Reference model, TCP/IP Reference Model.
- 1.3 Application Layer: Application layer protocols:-
- 1.4 WWW and HTTP, FTP, DNS, SMTP, SNMP, RPC, P2P File sharing,
- 1.5 Domain Name system (DNS)

## **UNIT-2 TRANSPORT LAYER AND NETWORK LAYER**

- 2.1 Transport Layer Services, Relationship with Network Layer,
- 2.2 Relationship with Application Layer, Multiplexing and De multiplexing, UDP,
- 2.3 TCP: Header ,Segment Structure, Services, Connection establishment and termination,
- 2.4 Flow control and window size advertising,
- 2.5 TCP time out and re-transmission, Congestion Control, TCP Fairness, Delay Modeling.
- 2.6 Network layer Services, Datagram and Virtual circuit services,
- 2.7 IP datagram format and Types of Services,
- 2.8 Datagram encapsulation and Fragmentation, Reassembly and fragmentation

## **UNIT-3 ROUTING AND DATALINK LAYER**

- 3.1 Routing: Link state routing, distant vector routing, hierarchical routing, multicast routing,
- 3.2 Data link layer services: Error detect and correction techniques,
- 3.3 Elementary Data link layer protocols, sliding window protocols, HDLC,
- 3.4 Multiple access protocols, TDM, FDM, CDMA Random access protocols:
- 3.5 ALOHA, CSMA, CSMA/CD,CSMA/CA.
- 3.6 Circuit and Packet Switching, Virtual Circuits, Switching Technology for LAN, Ethernet switches, Virtual LAN

## **UNIT-4 PHYSICAL LAYER, HIGH SPEED NETWORKS AND NETWORK PROGRAMMING**

- 4.1 Physical Layer services,
- 4.2 Transmission media,
- 4.3 Data encoding schemes. ISDN, BISDN,
- 4.4 Frame relay, Fast Ethernet and Gigabit Ethernet, FDDI, SONET.
- 4.5 NETBIOS programming, TCT/IP and Socket programming.

### **References Books:**

1. James F. Kurose and Keith W. Ross, Computer Networking- A Top-Down Approach Featuring the Internet, 5/e Pearson Education ,2010, ISBN:978-0-13607967-5.
2. Behrouz A. Fourouzan, Firouz Mosharrarf, Computer Networks A Top-Down Approach, Tata McGrawHill, 2012, ISBN: 13978-1-25-900156-7
3. Andrew S. Tanenbaum, Computer Networks, 4/e, Pearson education, 2003, ISBN:978- 8-17-758165-2.