COMPUTER NETWORKS

UNIT I: INTRODUCTION

- Examples of Networks: Novell Networks, Arpanet, Internet
- Network Models: OSI, TCP/IP, and other network models
- Network Topologies: WAN, LAN, MAN
- Physical Layer: Transmission media (copper, twisted pair, wireless), switching and encoding, asynchronous communications

UNIT II: DATA LINK LAYER

- Design issues
- Framing
- Error detection and correction
- CRC (Cyclic Redundancy Check)
- Elementary Protocol: Stop and wait
- Sliding Window
- Medium Access Sub Layer: ALOHA, MAC addresses, Carrier sense multiple access, IEEE 802.X Standard Ethernet, Bridges

UNIT III: NETWORK LAYER

- Virtual circuit and Datagram subnets
- Routing algorithm: Shortest path routing, Flooding, Hierarchical routing
- Broadcast and Multicast
- Distance vector routing
- OSPF (Open Shortest Path First)
- IPv4

UNIT IV: TRANSPORT LAYER- Transport Services

- Connection management
- TCP (Transmission Control Protocol) and UDP (User Datagram Protocol)
- Congestion control

UNIT V: APPLICATION LAYER

- Network Security
- Domain Name System (DNS)
- SNMP (Simple Network Management Protocol)
- Electronic Mail
- The World Wide Web
- Multimedia

UNIT-1 :

1. Explain in detail about OSI reference model.
2. Compare OSI and TCP/IP models.
3. Draw the diagram and explain (a) Novell network (b)Arpanet.
4. What is network topology and mention different types of network topologies in detail.
5. Explain twisted pair wireless communication with neat diagram.
6. Explain transmission media copper and encoding asynchronous communication.

UNIT-2:

1. Explain error detection technique ,explain CRC with an example.
2. What is framing and explain in detail the bit stuffing.
3. Explain the following. (a) stop and wait. (b) sliding window techniques.
4. Describe the ALOHA and slotted ALOHA with neat diagrams.
5. What is IEEE 802.X standard ethernet.
6. Explain the working of bridges.

UNIT-3:

1. Explain the following routing techniques (a) virtual circuit. (b) Data diagram.
2. What is subnet . Explain how to create a subnet mask with IP Address : 216.21.15.0 with 30n hosts.
3. Explain in detail about distance vector routing.
4. Explain the following . (a) Hierarchical routing. (b) Flooding.

5. Mention the differences between Uni cast , broad cast, multi cast.

6. Explain IPV4 in detail and also mention the classful address.

UNIT-4:

1. Explain the characteristics of transport layer and connection management.

2. Explain in detail the transmission control protocol(TCP) in the transport layer.

3. Compare the TCP and UDP protocols in the transport layer.

4. Explain byte streaming and congestion control in the transport layer.

UNIT-5:

1. Draw the block diagram for network security model and explain in detail.

2. What is DNS (Domain Name System) with neat diagram and explain it's functionality.

3. Explain the working of SNMP (Simple Network Manage Protocol).

4. Explain the electronic mail with neat block diagram.

5. Explain the following. (a) World Wide Web (WWW). (b) Multimedia.