End Semester

▼ UNIT 1 DATA LINK LAYER

- ☐ Introduction to Computer Networks and Internet
  - ☐ Devices
  - ☐ Network Components
- ☐ Layered Architecture (OSI and TCP/IP)
  - ☐ Functionality of Each Layer
  - ☐ Comparison
- ☐ Framing
  - ☐ Fixed Framing
  - ☐ Variable size framing
  - ☐ Bit Stuffing
  - ☐ Byte Stuffing
- ☐ Error Control
  - ☐ Error Detection and Correction
  - ☐ CRC
  - ☐ Checksum
  - ☐ Hamming Code
- ☐ Media access protocols
  - ☐ ALOHA (Pure Aloha and Slotted Aloha)
  - ☐ CSMA-CD

▼ UNIT 2 NETWORK LAYER

- ☐ Internetworking and Routing
  - ☐ Best effort Service
    - ☐ QoS
    - ☐ Network Delay
  - ☐ Switching
    - ☐ Circuit Switching
    - ☐ Datagram Switching (Packet Switching and Virtual Circuit Switching)
  - ☐ Virtual Circuits
  - ☐ IP Addressing
    - ☐ IP Address Classes
    - ☐ Classless Addressing
    - ☐ Special IP Address
    - ☐ Private IP Address
    - ☐ Sub netting (Fixed and variable)
  - ☐ IPv4 header
  - ☐ Datagram Fragmentation
  - ☐ Routing Issue
    - ☐ Distance Vector (RIP)
    - ☐ Link State Routing (OSPF)

- [ ] Binary Exponential Back off Algorithm
- [ ] Ethernet 802.3
  - [ ] Introduction
  - [ ] Frame Format
  - [ ] Efficiency
- [ ] Token ring 802.5
  - [ ] Introduction
  - [ ] Frame Format
  - [ ] Efficiency
  - [ ] Ring Latency
  - [ ] Issues and their solutions
- [ ] Reliability Issue: sliding window
  - [ ] Stop and Wait
  - [ ] Go Back-N
  - [ ] Selective Repeat
  - [ ] Piggybacking
  - [ ] Efficiency

▼ UNIT 3 TRANSPORT LAYER

- [ ] End to end delivery issues
  - [ ] Introduction of TCP and UDP
  - [ ] Sockets
  - [ ] Applications
  - [ ] Three-way handshaking
  - [ ] TCP header

- [ ] BGP.

▼ UNIT 4 APPLICATION LAYER

- [ ] DNS
  - [ ] Architecture
  - [ ] Hierarchy
  - [ ] Name Space Distribution
- [ ] FTP
- [ ] HTTP

- [ ] UDP Header
- [ ] Reliable data transfer
- [ ] Congestion control
  - [ ] Slow Start-Exponential Increase
  - [ ] Congestion Avoidance-Additive Increase
  - [ ] Congestion Detection-Multiplicative Decrease
- [ ] Quality of Service.
  - [ ] WWW
  - [ ] Web Document
  - [ ] HTTP Transaction
- [ ] SMTP
  - [ ] Electronic Mail Architecture
- [ ] Socket Programming.