

**Computer Networks Course**  
**Midterm Exam Study Guide**  
**Chapters 1, 2 and 3**

**Chapter 1**

Internet and Protocol Definitions

Network Edge and network core

Wireless Access Networks

Transmission delay and Propagation delay formula

Queuing delay and processing delay concept

Packet switching versus circuit switching

Three Tier of ISP

Caravan Example

Traceroute

Finding average throughput for different topology

5 layers of Internet

Types of Attacks

Packet sniffing and IP spoofing

Internet History

**Chapter 2**

Application Architectures

Socket

Process Addressing

Different applications transport service requirements and transport protocol

TCP and UDP services

SSL

HTTP Protocol

Cookies

Proxy Server

FTP Protocol

SMTP Protocol

DNS Protocol

File Distribution time for P2P and Client server

DHT

Multimedia and DASH

Content Distribution Networks (CDN)

### **Chapter 3**

Transport Layer Services

Transport Layer versus Network Layer

UDP, UDP header and Checksum

Rdt 1.0, 2.0, 2.1, 2.2 and 3 concepts

GBN and Selective Repeat concepts

TCP sequence number and ACK number

TCP timeout formula

TCP fast retransmit

TCP flow control

TCP handshaking and closing the connection

TCP congestion control

TCP modes: Slow Start, Congestion Avoidance and Fast Recovery

TCP Tahoe and Reno

TCP Average Throughput Formula