**Review For Midterm:**

Chapter 1:

* What In Internet
* BB Access Technologies – DSL, Cable Loop, Fiber, Wireless, Satellite, PL (Can Use The Diagram)
* How Many Layers In TCP/IP – 5 (Co, Cl)
  + CO (What It Is – Reliable)
* Data Network, Packet Network, IP Network
* Best Effort – CL
* L/R -
* Q Delay – Delay For The Nth Packet: (N-1) L/R
* E2E Delay: Caravan (Packet)/Car (Bit): T1 - T2 (10, 12, Pd)
* Traffic Intensity I = Al/R (Stable/Unstable)
* Trace Route: What It Is, How It Works
* Delay : L/R; D/S
* Throughput: Def, Min ( X,Y,Z) – Example (10 Simultaneous Downloads (S To C), Where A R Is Being Shared (Rs = 1 Mbps, Rc = 1 Mbps, R = 1 Mbps)
* Encapsulation: Segment, Datagram (Packet), Frame

Chapter 2:

* Network Application
* C-S
* Socket (Process To Process)
* HTTP – Req/Resp ; Message Structure ; Two Types Of HTTP Connection – P And NP Advantages/Disadvantages- Problem Solving (RTT, L/R)
* URL
* Web Cache – What It Is, How It Works, Problem Solving (Given – L, A, Ra, Rl) : U= (Al/R )%
* Cookies/Smtp/Email – (UA, Server, Protocol)
* DNS – What It Is ; How It Works; Iterative, Recursive Queries
* File Distribution Time- S -C; PEP; Bit Torent
* Socket Programming (TCP Client Socket, TCP Server Socket):

Chapter 3:

* Transport Layer – Logical Communication (CO/CL)- TCP/UDP)
* Rdt – FSM To Describe Action Taken By The Sender And Receiver (Transition Diagrams – Arrows)

Event/Action (4 Functions- )

All The Diagrams – Explain The Transition Conditions In Arrows

* Stop-Wait – ( It Makes Transmission Reliable, But …………….)
  + Problem Solving – Given: R, RTT, A, L; Calculate U= L/R / (RTT+L/R );
  + Performance Explaining
  + Effective Throughput – L/ ????;
  + Pipelining – GBN And SR
    - GNB (How It Works) (Sliding Window/Shifting)/ SR
* Segment – SN – How To Calculate How Many Segments In The Stream Of Bytes, Sequence Number
  + Given Size Of The Byte Streams , MSS: How Many Segments, Sequence Numbering
* Flow Control Controlled By The Receiver– Def, How It Works, Formula Rwnd = Rcvbuffer – [ X -Y]
* Congestion Control Is Controlled By The Sender - Def, How It Works, Formula – Cwnd =
* Two Types Of Method- Additative , Multiplicative (Saw Tooth)
* Fast Retransmit (Def, How It Works)
* Summary Of Congestion Control (Slow Start, Congestion Avoidance, Fast Recovery); Walk Through The Diagram And Explain Each Arrow