Advanced Computer Networks
Final Exam
General Topic Study Areas

{ The first two groupings are background concepts for the papers. }

TCP Congestion Control Mechanisms
  Sliding Windows
  AIMD
  Slow Start
  Fast Retransmit
  Fast Recovery
  Tahoe, Reno, Vegas

Measures of Performance
  Throughput, goodput
  Utilization
  Response time, delay
  Fairness
  Other performance measures in papers

Congestion Control Algorithms
{ For each algorithm you want to have a basic idea of the algorithm, the goals of the algorithm and the advantages and disadvantages. }
  Drop Tail (FIFO)
  FQ, WFQ and DRR
  RED, FRED and ECN
  RIO-PS
  CSFQ
  PI
  DCN
  TCP Friendly Concept

Traffic measurements at University of Washington

Infrastructure Wireless versus Ad-Hoc Networks
{ Wireless implies an AP and immobile nodes. Ad-Hoc Mobile implies motion and routing. }
  Issues related to all wireless network types (Wireless Primer)
  802.11 a, b and g., DCF versus PCF
  Roofnet Results
  Streaming Wireless Results
  3G strategies
    ACK Regulator, Window Regulator, WRS, WRB
  Multihop Wireless Metrics
    Hop Count, RTT, packet pair, ETX
  Open Issues
TCP-probing, WTCP, Freeze-TCP
Misbehaving Wireless nodes
DSR, Watchdog, PathRater

Network Security Issues
{ Generally, here you wish to know the nature of various types of attacks and be able to talk about the proposed solutions in these papers. }

Wireless Security
WEP and its flaws
Security Approaches
Split Connection, SNOOP, TCP Hack, PEP, and SPEP
Sensor Network Security – TinySec
power versus security, Auth versus AE

Distributed Denial-of-Service Attacks (DDOS)
Survey: direct versus reflector, TCP SYN ACK, Traceback, Detection and Filtering, Internet Firewall

PacketScore System
3D-R, traffic profiling, attributes and CLP

Power Law Networks
IP Traceback, Route-Based DPF
Wormhole and Geographic and Temporal Leashes

Virtual Private Networks