Reminder: Bring a calculator and one page of notes

Chap 4 notes

Datagram vs. virtual circuit; VC identifier unique for each link
Routing versus forwarding; IP forwarding versus VC forwarding
CIDR addressing, longest prefix match, address aggregation
Protocols in IP layer, IP fragmentation
DHCP, NAT (NAT traversal problem)
IPv6, changes from v4, transition from v4 to v6, tunneling
Link state routing, LS broadcast, distance vector routing
Hierarchical routing: intra-AS and inter-AS
EIGRP, RIP, OSPF – routing within an autonomous system
BGP (internal and external), reachability, loop-freedom, routing policies (import and export)
Three approaches of multicast

Chap 5 notes

CRC algorithm for error detection
Reliable delivery in link layer needed?
Taxonomy of multiple access protocol
Slotted ALOHA protocol and its throughput, CSMA/CD protocol and its throughput
MAC address flat and location-independent, ARP protocol (soft state)
How to use both IP and MAC addresses to deliver a packet to its IP destination
Ethernet switches, switch table (soft state), self-learning, plug and play
VLAN, MPLS, data center networks

Chap 6 notes

Wireless link characteristics, CDMA
Wi Fi network elements
Hidden terminal and fading problems (affect carrier sensing),
Collision detection not doable in wireless
CSMA/CA (requires an ACK, uses RTS and CTS packets)
Chap 8 notes

Symmetric key and public key crypto (high-level view)
How RSA is used for confidential communication, for digital signature
Message integrity using a shared key
Endpoint authentication, challenge and response protocol - what is a nonce?
Public key certificate signed by a trusted authority
How to apply above techniques to provide secure e-mail (confidentiality, integrity, authentication) and
secure sockets layer
Virtual private networks using IPsec, AH and ESP protocols, security associations
IPsec datagram (how it is encrypted and authenticated), NAT traversal
Stateless and stateful packet filters