

CSC 469 FINAL EXAM STUDY GUIDE

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1. GENERAL

The final exam will focus on the transport and network layers, but there will be questions on DNS, TCP programming, and UDP programming.

If there is a programming question, it will be open book/open notes, so bring your notes in case you need them!

2. DNS

The nature of the services provided by DNS, DNS as a distributed database, different type of DNS servers: root, authoritative, TLD, and local DNS servers; iterative and recursive queries.

3. TRANSPORT LAYER

UDP and TCP. UDP and TCP segment structure, header fields, and their meaning. Different types of protocols: pipelined, stop and wait, ARQ; techniques and mechanisms for achieving reliable data transfer: error checksums, timers, sequence numbers, receiver feedback and sender retransmissions, dealing with data corruption and packet loss.

Computing the network utilization of stop and wait protocols.

GBN and Selective Repeat.

Estimating how to set the timeout interval for retransmission in TCP.

Difference between flow control and congestion control.

TCP's 3-way handshake for establishing connections.

4. NETWORK LAYER

Routing tables and forwarding tables; the IPv4 and IPv6 datagram formats and header fields; Dealing with MTUs that are too small in IPv4 and IPv6; ICMP; NAT, DHCP; IP subnets and subnet addressing, classful addressing and CIDR.

Routing algorithms: distance vector (Bellman-Ford) and Link-state algorithms (Dijkstra): difference between distributed and centralized algorithms, the problem of route oscillation with certain routing algorithms.