Exam #1 will cover all of Chapters 1 and 2 in our textbook. The exam is closed book, no notes.

You should understand:

1) The four sources of packet delay and the key factor(s) that affect each. (Section 1.4.1)

2) The name and function of each layer in the IP stack. (Section 1.5.1)

3) Define IP address, socket, and protocol, and describe their role in process communications. (Sections 1.1.3, 1.5.2, 2.1.2)

4) The three primary protocols used for email. (Section 2.3)

5) Dedicated and shared access networks as discussed. (Section 1.2.1)

6) FDM and TDM. (Section 1.3.2)

7) Throughput vs. bandwidth. (Section 1.4.4)

8) HTTP (non-persistent and persistent). (Section 2.2.2)

9) Web caching and its benefits. (Section 2.2.5)

Exam #2 will cover Chapters 3 and 4 in our textbook. The quiz is closed book, no notes.

You should understand or be able to:

1)  Describe the purpose of the following mechanisms in a reliable data transfer protocol: Checksum, Timer, Sequence Number, Acknowledgment, Negative Acknowledgement, and Window. **(Section 3.4.4)**

2)  Describe the purpose and operation of each field of the UDP segment header. **(Section 3.3.1)**

3)  Describe the purpose and operation of each field of the TCP segment header, ignoring the flags or urgent data field. **(Section 3.5.2)**

4) Describe the routing and forwarding processes as performed by a router (switch) in:

    a) a traditional router network, and

    b) an SDN-enabled network.

**(Section 4.1.1)**

5) Describe the following packet scheduling/queue management methods: FIFO, Priority, Round Robin, and WFQ.  **(Section 4.2.5)**

6) CIDR and IPv4 subnetting **(Section 4.3.3)**

7) Describe the purpose of each field in the IPv6 datagram header. **(Section 4.3.5)**

8) Describe the purpose of each field in the IPv4 datagram header, ignoring the flags, identifier, and fragmentation offset. **(Section 4.3.1)**

The final will cover Chapters 1 through 6 in our textbook. The exam is closed book, no notes.

1) Describe the following network attacks: botnet, worm, virus, and DoS. Describe three types of DoS we reviewed. (Section 1.6)

2) Describe DASH and the process of video file acquisition, including the provision for clients with various bit-rates of access. (Section 2.6.2)

3) Describe the DNS protocol, four services provided by DNS, the three primary levels of DNS server hierarchy, and the function of each server type. (Section 2.4)

4) IPv4 addressing / subnetting (Section 4.3.3)

5) Describe the process a host uses to obtain the MAC address for a host on their network given an IPv4 address (Section 6.4.1)

6) Describe the four primary services provided by the link layer. (10pts)  
(Section 6.1.1)

7) Define AS, BGP (and characteristics), eBGP, and iBGP. (Sections 5.4.1-3)

8) Provide a brief comparison of Link State and Distance Vector algorithms. (Section 5.2.2)

9) Provide a definition and function/purpose for the following: RFC, IETF, IEEE, IANA, and VLAN (802.1q)