

Please carefully review the following list of contents. The final exams will not necessarily cover everything in the list, but the topics beyond this list will not be covered. Inside the parentheses, the forms of questions that will appear in the final exam and the points related to the specific chapters are also provided.

1. Introduction (**8 points of multiple-choice questions+4 points of calculation**)
physical media, protocol layers; service models; network edge; network core; delay, loss, and throughput
2. Application Layer (**10 points of multiple-choice questions+8 points of calculation**)
application architectures; sockets; HTTP; FTP; email; cookies; web caches; DNS
3. Transport Layer (**10 points of multiple-choice questions+10 points of calculation**)
multiplexing and demultiplexing; rdt (state machine excluded); UDP; TCP
4. Network Layer (**12 points of multiple-choice questions+12 points of calculation**)
control plane and data plane concepts; router architecture; IP; routing protocols; intra-AS routing; inter-AS routing; ICMP
5. Link Layer (**10 points of multiple-choice questions+16 points of calculation**)
error detection and correction; ARP; multiple access protocols; LANs