## Question 1: Reliable Data Transfer

- rdt_send(data) — compute chksum, make_pkt(sndokt, 0, data, chksum), udt_send(sndpkt)
- wait for ACK or NAK 0
- (rdt_rcv(rcvpkt) && (corrupt(rcvpkt) ll isNAK(rcvpkt) ) — udt_send(sndpkt)
- rdt_rcv(rcvpkt) && notcorrupt(rcvpkt) && isACK(rcvpkt)
- wait for call 1
- rdt_send(data) — compute chksum, make_pkt(sndpkt, 1, data, chksum), udt_send(sndpkt)
- wait for ACK or NAK 1
- rdt_rcv(rcvpkt) && ( corrupt(rcvpkt) ll isNAK(rcvpkt) ) — udt_send(sndpkt)
- rdt_rcv(rcvpkt) && notcorrupt(rcvpkt) && isACK(rcvpkt)
- wait for call 0

## Question 2: Throttlin

With flow control, TCP will ensure that it is not sending packets faster than the receiver can consume them, thereby overwhelming the receiver. With congestion control, TCP will determine the appropriate sender's window size, thereby ensuring that the network can deliver the data without being overwhelmed by the amount of packets the sender creates.

## Question 3: NAT

- from A to X behind the NAT
  source address: 10.0.0.1, any port between 1025 - 65365
  destination address: 1.2.3.4.5, port 80
- from B to X behind the NAT
  source address: 10.0.0.2, any port between 1025 - 65365
  destination address: 1.2.3.4.5, port 80
- from A to X between the NAT and X
  source address: 5.6.7.8, any port between 1025 - 65365
  destination address: 1.2.3.4.5, port 80
- from B to X between the NAT and X
  source address: 5.6.7.8, any port between 1025 - 65365
  destination address: 1.2.3.4.5, port 80

- from X to A between X and the NAT
  source address: 1.2.3.4.5, port 80
  destination address: 10.0.0.2, any port between 1025 - 65365
- from X to A between the NAT and A
  source address: 1.2.3.4.5, port 80
  destination address: 10.0.0.1, any port between 1025 - 65365

NAT Translation table looks basically as the above does.

## Question 4: Routers

- There are 3 subnets on this network, with the smallest prefix being 1.1.1.0
- 1,024 (all in one block), or 3 blocks of 256
- 

| Network dest | Netmask | Gateway |
|---|---|---|
| 1.1.1.0/24 | 255.255.255.0 | 1.1.1.0/24 |
| 1.1.2.0/24 | 255.255.255.0 | 1.1.4.1/32 |
| 1.1.3.0/24 | 255.255.255.0 | 1.1.5.1/32 |
| 0.0.0.0/0 | 0.0.0.0 | 1.1.1.0/0 |

## Question 5: Routing

see code