

Computer Network HW03

1. Each TCP has a source IP address, source port, destination IP address, destination port.
 Since each source IP address and source port are different,
 although the same host port is used, the host will open an independent socket.
2. a. 90
 b. $110 - 90 = 20$
3. $\{n, n+1, n+2\} \bmod 1024$
 $\{0, 1, 2\}, n=0$
 $\{1, 2, 3\}, n=1$
 \vdots
 $\{1021, 1022, 1023\}, n=1021$
 $\{1022, 1023, 0\}, n=1022$
 \vdots
4. (1) Host A sends data to Host B's TCP receive buffer at a rate of 100 Mbps.
 (2) Host B's read rate is only 50 Mbps.
 (3) when Host B's TCP receive buffer is full, Host B will set $\text{rwnd} = 0$
 (3.1) when $\text{rwnd} = 0$, Host A stops sending data
 (3.2) when $\text{rwnd} = 1$, meaning Host B's receive buffer has enough space.
 (Host A sends data)
5. To prevent RTT measurements from being affected by ambiguity and ensure RTO calculations are more accurate and stable.