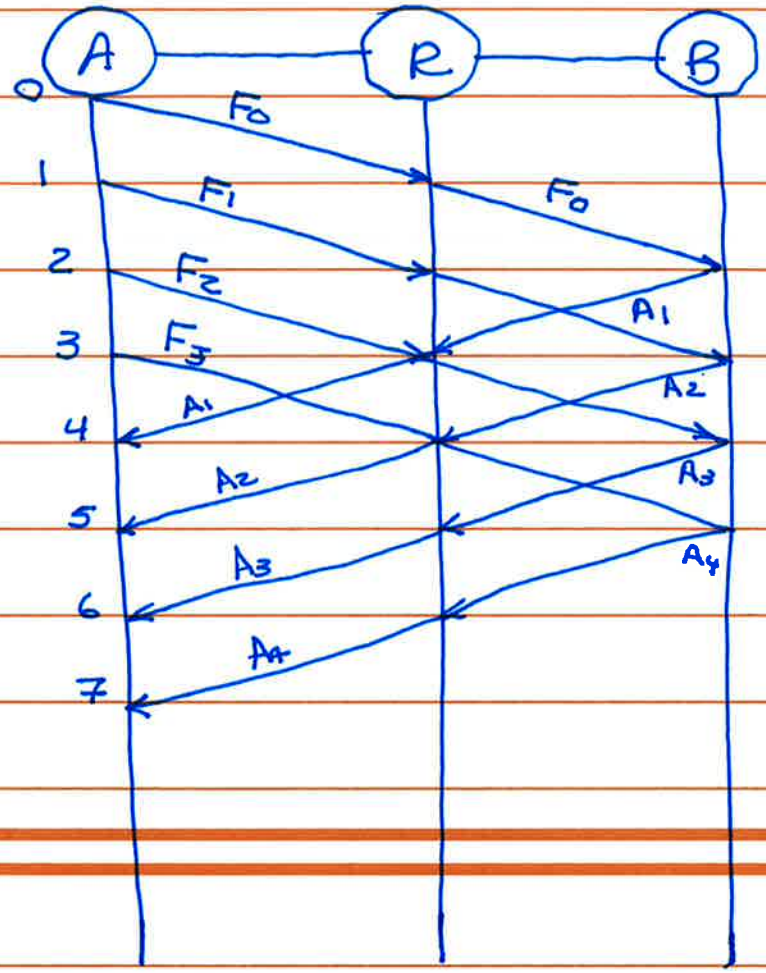
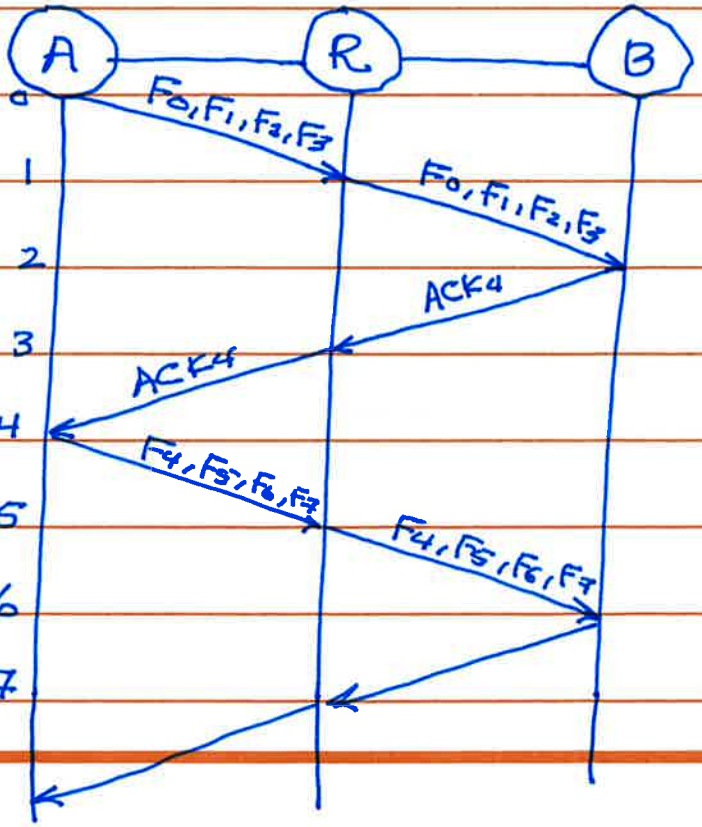
36

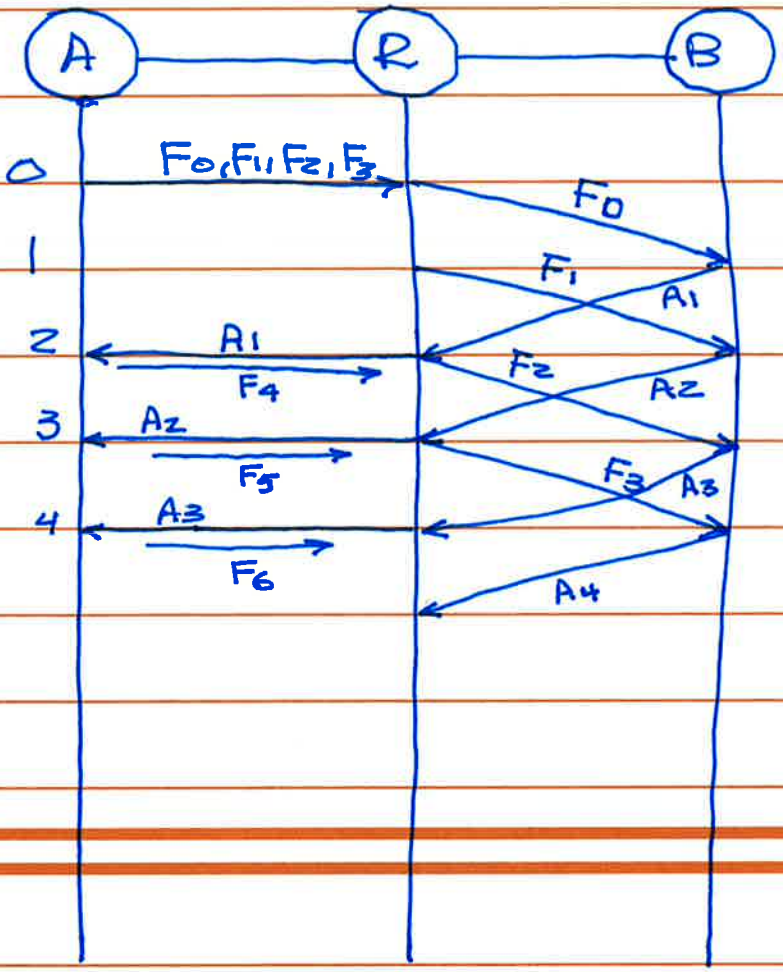
a)


A
R
B
0
1
2
3
4
5
6
7
F0
F1
F0
F2
A1
F3
A2
A1
A2
A3
A3
A4
A4

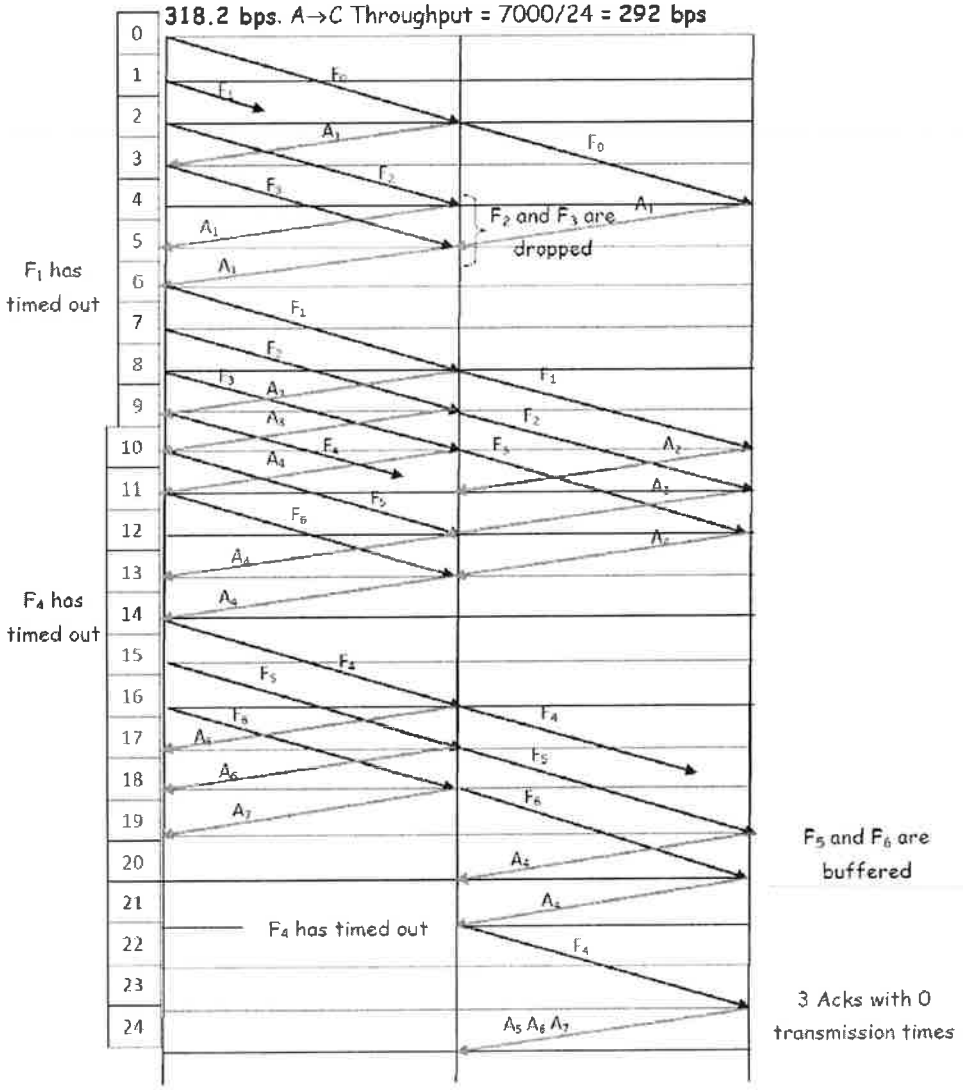
b)


A
R
B
0
1
2
3
4
5
6
7
F0, F1, F2, F3
F0, F1, F2, F3
ACK4
ACK4
F4, F5, F6, F7
F4, F5, F6, F7

37)




| t | Queue |
|---|---|
| 0 | $F_1, F_2, F_3$ |
| 1 | $F_2, F_3$ |
| 2 | $F_3, F_4$ |
| 3 | $F_4, F_5$ |
| 4 | $F_5, F_6$ |

⇒ steady state queue size = 2 frames.

5. A→B Throughput = 7000/19 = **368.4bps**. B→C Throughput = 7000/(24-2) = **318.2 bps**. A→C Throughput = 7000/24 = **292 bps**