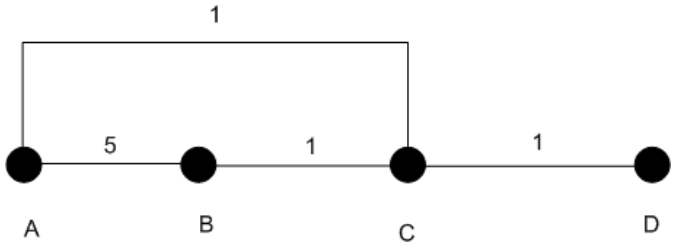
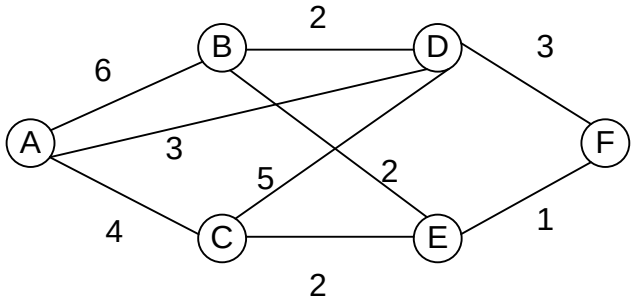
COMP 5320/6320
Design and Analysis of Computer Networks
Homework Assignment 3, Nov. 18
(Self Exercise, No Submission)

Instruction: This is a best-effort self-exercise assignment, mainly designed for the purpose of helping you to better prepare for your comprehensive final exam. Every student should finish the following questions independently. No submission is required and all students will automatically receive full score for this assignment. Answers will be posted on Canvas on Nov. 30. Every student is encouraged to compare his/her own answer with the posted answer and study it if there is any difference.

1. Draw the routing table for the following topology when distance vector routing algorithm is used. You need to draw the table for every node and for every round of their information exchange, until it converges.



2. Use Dijkstra's algorithm to decide the shortest path from node A to every other nodes in the following topology. You must plot every step of the execution of the algorithm in order to receive full points. Giving the final results without intermediate steps will receive 3 points. (15 pts)



3. For TCP end-to-end flow control, suppose the capacity of the receiver buffer is 10 packets. Suppose the packets that are being queued in the receiver buffer are packets 4, 5, 6, 7, 8, 10, 11. What is the advertised window size the receiver sent to the sender? Suppose packet 12 is the last packet sent by the sender.

What’s the effective window size at the sender? Can the sender send out packet 13 at this moment? How about packet 14?