CS 655: Introduction to Computer Networks
Fall 2022

Homework 3

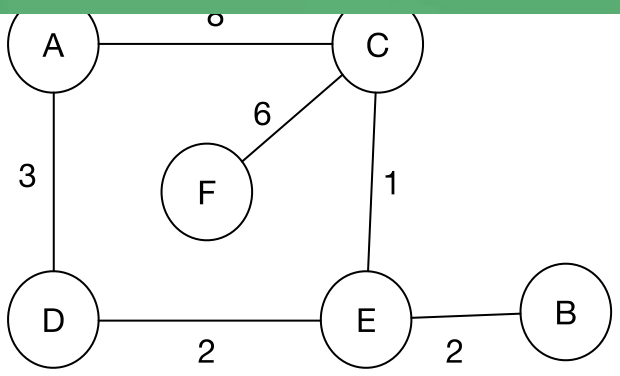
To be completed individually. Please review the academic conduct rules mentioned in the syllabus. Answer all questions. Submit on Gradescope.

This assignment is part of BU CS 655 material and is provided for educational purposes. Please do NOT share or post this assignment handout or solution, on any public site, *e.g.* github. Of course, you are not allowed to share your solution with classmates.

1. Suppose that you are using an extended version of TCP Reno that allows window sizes much larger than 64K bytes.[1] Suppose you are using it over a 1Gbps link with a rou and the TCP receiver's segments, and assuming

   (a) How m ndow reaches 2M bytes? size of a single segment, a a value higher than the re
   (b) How m
   (c) If the t RTTs times the RTT value at percentage of the link ca

2. Consider t ated. Give the datagram- A, B, and C. Assume th least cost) route to each de



[1] A 16-bit receiver's advertised window in the TCP segment means that 2^{16} = 64K bytes is traditionally a maximum limit on the send window.

3. Consider a campus-area network that runs the distance-vector routing protocol RIP (Routing Information Protocol), where router K has the following routing table.

Destination	Distance	Next-Hop
Net 1	0	direct
Net 2	0	direct
Net 5	8	Router L
Net 17	6	Router M
Net 24	6	Router J
Net 30	2	Router Q
Net 42	2	Router J

Suppose router K receives the following routing update from router J.

Destinatio
Net 1
Net 5
Net 17
Net 22
Net 24
Net 30
Net 42

Give router K uter J. Note that RIP assumes t eighbor routers) is 1.

4. Assume a 60 switches (nodes). If re exchanged twice a se ed up by the distributed inks to other nodes.

5. Solve the exercise given in the GENI lab on "Designing subnets".

6. What are the CIDR addresses for a network if all its addresses start with 145.98? And if this network has exactly two subnets, what are the CIDR addresses for each of its subnets?