Assignment #7

No late assignments accepted!

ECE 487 (Data Communications Networks) **Section B1** Dr. Hai Jiang

Electrical and Computer Engineering, University of Alberta Winter 2020

Your Last Name: _____ Your Fist Name: _____

Your Student ID: _____

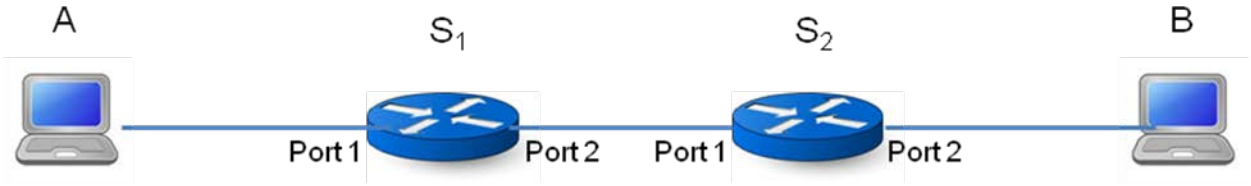
Due: Thursday, March 12, 2020, 4:00 PM, in the assignment box at 2nd Floor - Pedway between ICE and ETLC

1. (6 points) The following figure shows a virtual circuit network. Station A is going to send information to Station B, through two switches: S_1 and S_2. A virtual circuit is set up for this communication: A --> S_1 --> S_2 --> B. For this virtual circuit, the VCIs over the three hops are 24, 15, and 66, respectively.

i) Who are responsible to assign the three VCIs?

ii) Please give the switching tables at the two switches.

iii) For communication from Station A to Station B, please give the VCI numbers included in the frames over the three hops.



2. (5 points) In a domain applying a distance vector routing protocol, station A and station B are neighbors. At a moment, the routing tables at the two stations are:

Station A

To	Cost	Next
A	0	-
B	4	-
C	12	B
D	13	-
E	10	-

Station B

To	Cost	Next
A	4	-
B	0	-
C	9	-
D	5	-
E	9	-

And subsequently, station B shares its routing table with station A. Please determine the contents in station A's routing table after the sharing.

(**Question 3 on the next page**)

3. (9 points) For the following network topology, please use the Dijkstra algorithm to find the shortest path tree for Station A, and based on the shortest path tree, give the routing table at Station A. **Please show your steps.** Please use a square to represent a station in the permanent list, and a circle to represent a station in the tentative list.