

CS447 – Networks and Data Communications

Summer 2026

Homework #1

Submission Due (each student is required to submit (by email) your solutions for this homework by **11:00AM on June 16**)

QUESTION #1: Complete the following table for comparing circuit-switching, virtual circuit-switching, and data gram packet-switching networks. Please use your SIUE email for your submission.

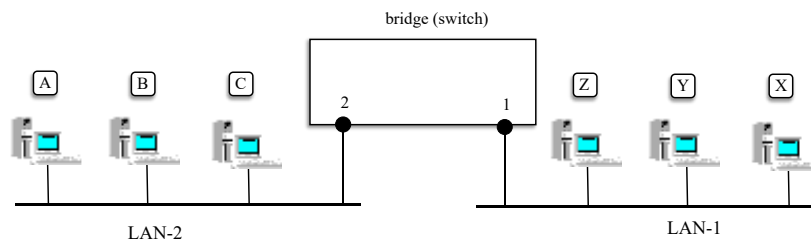
Factors	Circuit-Switching	Virtual Circuit	Datagram
Examples			
Resource Sharing			
Dedicated Paths			
Continuous Transmission			
Path-setup in advance			
Busy signal if dest. busy			
Major delay			

QUESTION #2: Complete the following table for comparing circuit-switching, virtual circuit-switching, and data gram packet-switching networks.

Factors	Circuit-Switching	Virtual Circuit	Datagram
No overhead after TX starts?			
Routing delay?			
Guaranteed Tx Bandwidth?			
Advantages			
Disadvantages			
Applications			

QUESTION #3: Let us assume that the two LAN segments are connected by a switch as shown by a figure below. At the beginning, the table is empty. After the following four activities (in that order – (a) happened first, (b) second, **and after (d) happened**), show the contents of the table (after the initial state).

- (a) Z sends a message to X (but X has not replied to Z yet after Z sends the message)
- (b) B sends a message to C (but C has not replied to B)
- (c) X responds to Z's message
- (d) Y sends a message to A (but A has not responded to Y's message)



Host	Port
A	
B	
C	
X	
Y	
Z	