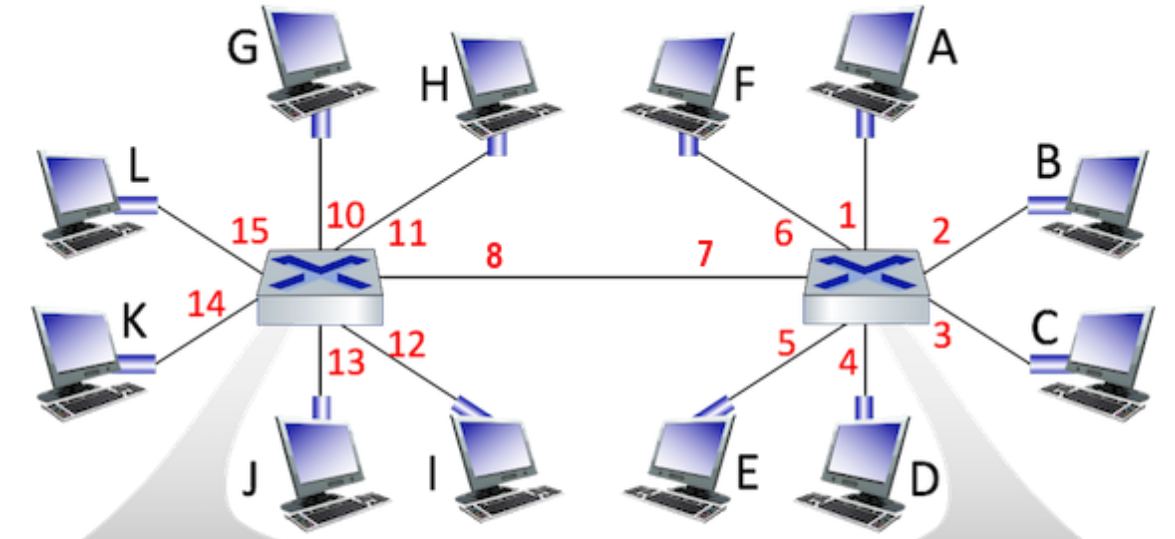
CSCI4760
Quiz 5

Name: ---------- Student ID: ----------

1. [1 point] Consider the LAN below consisting of 10 computers connected by two self-learning Ethernet switches. At t=0 the switch table entries for both switches are empty. **<u>At t = 1, J -> K</u>** transmissions occur (the transmissions in reply occur but are not shown in the list below)



MAC addr	interface	TTL

switch 2 Table

MAC addr	interface	TTL

switch 1 Table

QUESTION LIST

1. At t=1, what is the source entry for switch 1? Format your answer as letter, number (For example (A,1)

2. At t=1, what is the destination entry for switch 1? Format your answer as letter, number
3. At t=1, what is the source entry for switch 2? Format your answer as letter, number

4. At t=1, what is the destination entry for switch 2? Format your answer as letter, number

2.[0.5 point] Suppose that a packet's payload consists of 5 eight-bit values shown below.

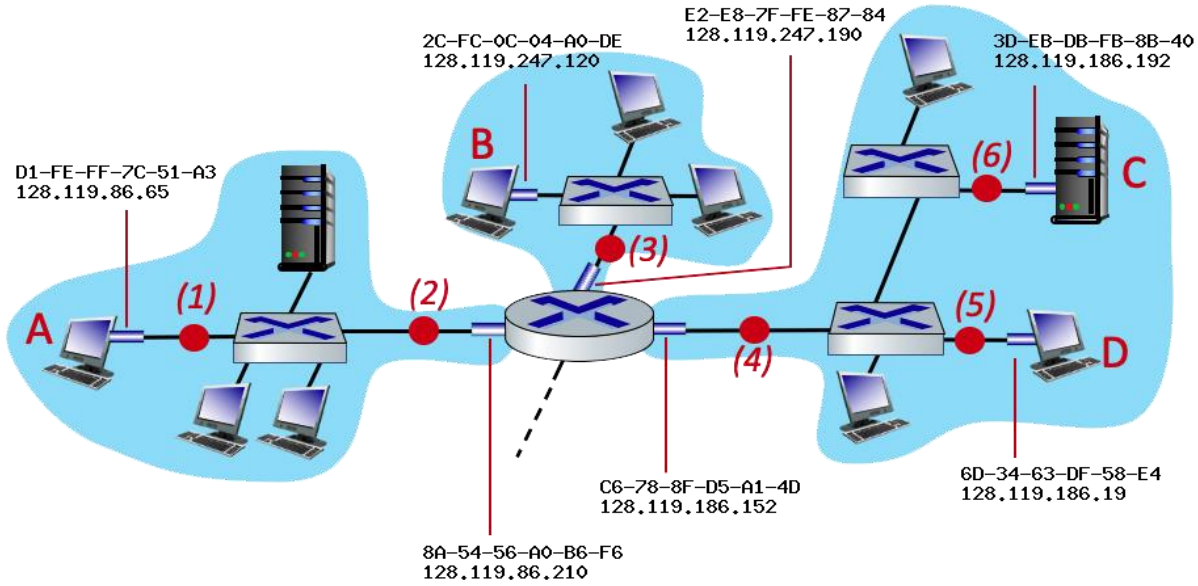
compute the two-dimensional odd parity bits

01111001
11110010
00010111
10110110
11010001

3. [0.75 point] Consider the Cyclic Redundancy Check (CRC) algorithm Suppose that the 4-bit generator (G) is 1001, and the data payload (D) is 10011010 .

Find R

4. [0.5 point] Consider the figure below. The IP and MAC addresses are shown for nodes A, B, C and D, as well as for the router's interfaces.



Consider an IP datagram being sent from node A to node D.

How many hops the packet goes through?

For each hop, what is the source and destination IP and what are the source and destination MAC (Write it as name of host or interface of the router. For example A's IP)

5. [0.25 point] Give two examples of "Random Access " MAC protocols?

6. [0.25 point] What is a cut through switch?

7. [1 point] With the CSMA/CD protocol, the adapter waits K. 512 bit times after a collision, where K is drawn randomly.

a. What is the maximum value of K for 15th collision.

b. **how long does the adapter wait** until sensing the channel again for this value of K from part a for a **100 Mbps** broadcast channel?

8. [0.75 point] In Figure below,

a. How many subnets are there?

b. Assign IP class C addresses **to T and E and interface of R1 that is in the same subnet with F and D.**

c. Assign MAC address **to T and E and interface of R1 that is in the same subnet with F and D**