

1. A) What is the main purpose of a LAN?
B) What is the name given to each PC in a LAN?
- C) Name the 4 common LAN topologies.
A.
B.
C.
D.
2. If there are 21 PCs in a network, all connected to every other PC, how many links would be needed?
3. A) What is name of the controller board used to connect a PC to a network?
B) What is the name of the connector that joins your UTP cable into this board?
4. What is an Ethernet **switch** AND what benefit does it offer over a standard **hub**?
5. What is CSMA/CD and how does it maintain order on a communication channel?
6. If the maximum reliable transmission distance of an Ethernet cable is 100 meters, what is the minimum number of repeaters required to connect two systems that are 1250 meters apart and are linked via a hub? (**HINT: A drawing will help!**)

7. What is the maximum length of data that can be transmitted in one Ethernet packet?

Name ->

Length ->

8. A) Open up the command prompt on your Windows computer. Type in the command:

```
ipconfig /all
```

Look through the output for your “Local Area Connection” and figure out which parameter corresponds to your MAC Address as we have defined it. Remember, it is a static identifier of a physical component. Write the MAC Address below.

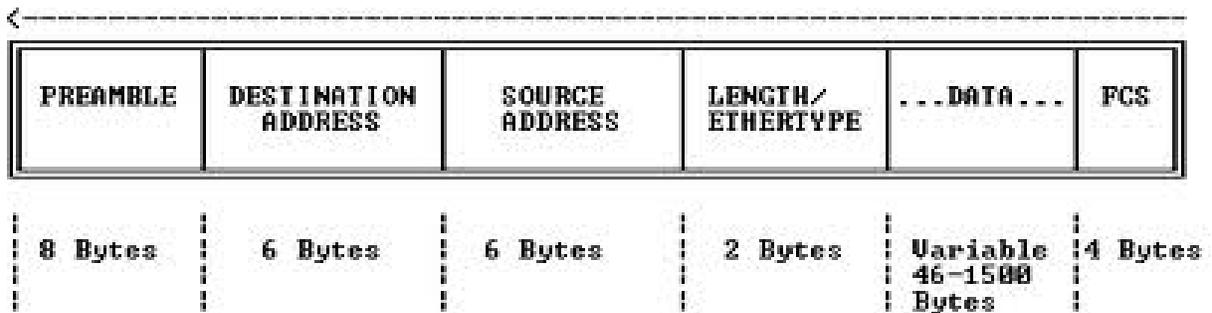
MAC:

B) What company manufactured your Network Interface Card? How did you find this out?

9. Build the Ethernet packet required to send the string “Hello World” from Alice (MAC- 11:22:33:44:55:66) to Bob (MAC- AA:BB:CC:DD:EE:FF). To simulate the Frame Check Sequence (FCS), connect to VSphere and pull up your terminal. Type in the following:

```
echo "Hello World" | md5sum
```

And use the first four hexadecimal bytes as your FCS.



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RECALL: ALL VALUES ARE REPRESENTED IN HEXADECIMAL!