**Name: Nicholas Defranco**

**Student id: 106732183**

1. Write down your MAC address without the hyphens

**409F3885EA77**

1. Click the BIN radio button. How many bits is the MAC address?

**48**

1. Click on the DEC radio button. What is the decimal conversion?

**71,052,592,278,135**

**B Networking:**

1. Write down your IPv4 address?

**192.168.0.20**

* 1. What is the network portion of the address?

**192.168.0.0**

* 1. What is the maximum number of hosts?

**254**

* 1. How many bits is the IPv4 address?

**32**

1. Conduct a Google search and identify 2 devices used in data communications. (Note: data communication devices deal with sending “signals” and forward frames based on the MAC or physical address)
   * **Bluetooth**
   * **Printer**

**(Computer Hope, 2019)**

1. Who is the Father of” Data Communications” or the “Information Age” of today?  
   **Claude Shannon**

**(Roberts, 2016)**

1. Speed Test
   1. What is the PING value (latency or delay)?

**13 ms**

* 1. What is your download speed?

**41.92 Mbps**

* 1. What is your upload speed?

**49.26 Mbps**

1. Type **PING my.senecacollege.ca**. What is the IPv4 address returned?

**52.72.80.178**

1. Type **PING Google.ca.** What is the IPv4 address returned?

**172.217.2.163**

* 1. What is the average round-trip time?

**2ms**

1. Type **TRACERT Google.ca.** This command records the pathway taken when packets are routed from your computer to Google.ca web site. The first hop is your IP address.
   1. What is the IP address of the first router? (2nd hop)   
      **10.19.2.254**
   2. How many hops (each hop is a server or a router) were taken?

**11**

1. Name 4 applications, based on a client\server architecture, you use everyday?
   * **Email**
   * **Web Servers (accessing web sites)**
   * **Online Video game servers (client – console, server – company's server)**
   * **Wireless printing**

**(Britannica, 2019)**

* + **Wirelessly printing a document**

1. Notice the IPv6 address is not written in dotted decimal format.
   1. What format is it?

**Hexadecimal**

* 1. How many bits long is it?

**128 bits**

1. Conduct a Google search and identify 2 devices used in networking? Note: networking devices deal with routing packets by IP address and the interoperability of information\sharing of resources)
   * **Network Router**
   * **Network Switch**

**(FossBytes, 2016)**

1. In one sentence explain the following acronyms PAN, LAN, MAN, and WAN

**PAN – Personal Area Network, the ability for one user to connect to other devices that are nearby.**

**LAN – Local Area Network, a server that communicates with computers in a small range such as a specific building (corporation or home), or a room (can also connect adjacent buildings or rooms).**

Man – Metropolitan Area Network, a network that **connects devices that connects devices** across a city (**or** metropolitan) area.

**Wan – Wide Area Network, multiple Local Area Networks or Metropolitan Area Networks connected covering a very large area such as a province, country, a specific company's real estate, or the entire globe.**

**(Mitchell, 2018)**

1. What is the most popular local networking technology today?

**Ethernet**

1. What address does Ethernet use to forward frames MAC or IP?

**Physical Address**

1. The protocol TCP/IP is used to network single switched networks together.
   1. What does this protocol acronym mean?   
        
      **Transmission Control Protocol/Internet Protocol**
2. Which Internet pioneers invented TCP/IP and are generally regarded as the “Fathers of the Internet”.
   * **Paul Baron**
   * **Robert E. Kahn**
   * **Vint Cerf**
   * **Leonard Kleinrock**

**(Pretz, 2014)**

**References**

Computer Hope. (2019). *Communication device.* Retrieved Jan 8th 2019, from <https://www.computerhope.com/jargon/c/communication-devices.htm>

FossBytes. (2016). *Different Networking Devices And Hardware Types – Hub, Switch, Router, Modem, Bridge, Repeater.* Retrieved Jan 8th 2019, from <https://fossbytes.com/networking-devices-and-hardware-types/>

Siobhan Roberts. (2016). *Claude Shannon, The Father Of The Information Age, Turns 1100100.* Retrieved Jan 8th 2019, from <https://www.newyorker.com/tech/annals-of-technology/claude-shannon-the-father-of-the-information-age-turns-1100100>

Kathy Pretz. (2014). *The Fathers of the Internet.* Retrieved March Jan 8th 2019, from <http://theinstitute.ieee.org/technology-topics/internet-of-things/the-fathers-of-the-internet>

Bradley Mitchell. (2018). *Introduction to LANs, WANs, and Other Kinds of Area Networks.* Retrieved Jan 9th 2019, from <https://www.lifewire.com/lans-wans-and-other-area-networks-817376>

Encyclopedia Britannica. (2019). *Client-server architecture.* Retrieved Jan 10th 2019, from <https://www.britannica.com/technology/client-server-architecture>