**1) Distinguish LANs, MANs and WANs**

LANs are local area networks. They’re geographically limited to a building or campus. They’re private and they are high speed. Shared media - single cable. The network is the cable. Protocol is CSMA/CD - listen before I send.

MANs are metropolitan area networks. They can be private or public as service

WANs are wide area networks. They are a carrier provided service and speeds can range from low-high

**2) How do communications and access differ between network types (i.e. how would you**

**expect wired performance to be different than wireless, satellite comm vs fiber optic)?**

A wired connection would be faster than a wireless connection because of duplicity. Ethernet is full duplex while wireless is half duplex. Ethernet can send and receive information simultaneously, while wireless networks must send and receive alternately. Wifi connects to the internet using the IEEE 802.11 protocol which works half duplex.

**3) What technology and/or trend or new app do you feel will have the most significant**

**impact on the data communications - networking industry in the next 5 to 10 years.**

Self-driving cars would have a big impact on data and networks because of how they would be relied on – satellite GPS, which means if it were to fail, there would be a lot of chaos in the streets. Wireless technologies. Cloud technology.

**4) Divestiture:**

**Describe background/origin of Divestiture decision.**

AT&T had a monopoly over the telecommunications company, since they owned everything. Everything had to be done through AT&T. It was a one call does all thing. Carterphone, the mobile phone couldn’t even connect because it was a non-carrier device. Tariffs are the rules and pricing that determines what you can and cannot do.

**Describe outcome**

AT&T had to divest itself of their ownership of the 22 companies.

**Describe the impact of Divestiture on you the customer (why should you care?)**

As the customer, you are now the integrator. You have the freedom to choose whichever carrier you want, but it requires more customer knowledge about carrier infrastructure. It was also more difficult to troubleshoot where the problem was. Is it with the LEC (CenturyLink) or with the IXC (long distance carrier)?

**5) Describe:**

**Local loop**

The connection between the LEC and the end user, from the office of the LEC to the home of the user

**IXC (interexchange carrier)**

Long distance carriers. They provide all the connections between local areas (LATAs). Connect LATAs.

**Common Carrier**

AT&T, Western Union

**LATAs**

Local areas covered by one or more telephone companies. Any service within a LATA is local

**ISP (Internet Service Provider)**

An organization that provides services for accessing the internet

**6) What is the OSI reference model and its relevance in networking?**

The OSI reference model shows how data communications should take place. There are 7 layers that data have to move through. Please Do Not Throw Sausage Pizza Away.

It's a very good troubleshooting guide. Difference between switching, routing,

Application – Layer 7 (network process to application)

Presentation – Layer 6 (data representation and encryption)

Session – Layer 5 (sync end to end conversation)

Transport – Layer 4 (end to end service quality)

Network – Layer 3 (routing data, path determination, IP)

Data Link – Layer 2 (physical addressing, MAC, LLC)

Physical – Layer 1 (media contention, basic networking hardware)

**7) How have networks evolved over the last 5, 10, 20 years?**

Going into the clouds, more dependencies on GPS. More consolidated bc of ISPs, everything you do is monitored over the network.