1.) Since twisted pair wire is pairs of 2 twisted wires, one for upload and one for download,

bundled together.

2.) Crosstalk is basically interference that can happen when two currents or signals get too

near each other. When a current passes through a wire, it creates a magnetic field, that

same magnetic field in the first wire cause a second wire to have a current. If two wires are running parallel and with a current each, then the magnetic fields of each wire distorts or interferes with the current of the other wire.

3.) CAT 5e, 6, and 7 are all used for Local Area Network (LAN) Gigabit Ethernet since they

can handle the high speeds. CAT 5e though, needs to be used in a specific way in order

for Gigabit speeds to be achieved.

4.) Shielded twisted pair has the advantage of adding an extra layer of protection from

unwanted electromagnetic interference. The downside to using shielded twisted pair is

the increase in price, seeing that CAT 5, 5e, and 6 unshielded cost between $.10 and

$.20 per foot, while shielded can cost an additional $1.00 per foot.

6.) Baseband differs from broadband coaxial cable in two ways. Baseband coaxial uses

digital signals to send data, and can only send 1 signal with the strength between 10- to

100-Mbps. Broadband coaxial on the other hand can send multiple signals or channels

that each may be 6 MHz.

7.) Since coaxial and twisted pair are wires with a current going through them, they

themselves produce an electromagnetic field that causes interference, on top of the

electromagnetic interference that comes from the environment in which it is installed. Fiber-optic cable on the other hand is just a glass housing for for light to be sent through it, so there is interference that can cause the light to change.

8.) Advantages to using fiber-optic cable is it’s high capacity and speed, it’s difficulty to tap,

and it’s low noise interference. The other side of this is that it is quite expensive to

setup, not directly because of the wire but because of the added components needed at

the ends of the transmission

13.) The four orbit levels for satellites are: Low-Earth-Orbit(LEO), Middle-Earth-Orbit(MEO),

Geosynchronous-Earth-Orbit(GEO), and Highly Elliptical Orbit(HEO)

15.) Based on which cell the cell phone is in, the cellphone company transmits the cell

phone’s ID to the cell tower. The cell phone then tries to seize the cell’s setup channel,

and once it’s seized a signal is sent to the CTSO. Once the CTSO verifies the cellular ID, a channel is assigned to the phone, and the call is connected.

20.) There is a clear and physically unobstructed view from point a to point b.

26.) Bluetooth has the advantages of being a low power form of data transmission, can

transmit through objects, and can communicate with various devices at the same time. It’s disadvantages are the limited distances it can communicate and low security.

28.) There are 4 protocols in the book, but currently there are 5 in use. They are 802.11a,

802.11b, 802.11g,802.11n, and the newest 802.11ac

31.) Data transmission speed is a measure of quantity, as in the amount of bits transmitted.

While propogation speed is how quickly those bits are moving through a medium, the speeds quality.

32.) Right-of-way is the permission to allow your cables for data transmission to pass through

the property of someone else, whether above the land or below, on the ground.

1.) The fact that CAT 1 wire has a range of 5-6 kilometers doesn’t mean that it’s the best for

long range, only that the signal sent over it will not begin to degrade until after 5-6

kilometers.

5.) Advantages to using fiber optic over coaxial are as follows: Higher speed transmision,

only the ends have to be upgraded in order to update the technology, much more difficult

to tap and intrude on a transmission, and much smaller than coaxial. Disadvantages: Much more costly due to the protective shielding, more fragile than coaxial seeing as it’s a tube of thin glass.

6.) Unshielded twisted pair has an advantage over coaxial in that it: cost less since there is

no need to purchase the shielding and can be used for various tasks. It does have disadvantages in that it: Is much easier to tap and eavesdrop a transmission, has a shorter range before the signals begin to deteriorate, and it’s much more susceptible to electromagnetic interference than coaxial cable.