1.) Broadcast radio, Cable television, and cell phones

2.) Analog signals

5.) The demultiplexor stays synced with the multiplexor because the multiplexor recieves

data from each device in a round-robin format. Even when a device has no data to send, the multiplexor keeps track by sending an empty packet for that device, and regular data for the other devices.

6.) Upto 24 channels

8.) While synchronous time division multiplexing sends data for active devices, and also

blank data for inactive devices, in turn wasting resources, statistical time division multiplexing sends data only from active devices. It will not send any data in the place of idle devices.

11.) You need light medium, as in laser.

13.) Dense wavelength Division Multiplexing uses frequencies of light that are closer to each

other and so much more tightly packed that Coarse Wavelength Division Multiplexing(CWDM). CWDM uses light frequencies that are more spread out in the light spectrum, and so uses lest energy to hone in on the specific frequencies next to each other.

16.) Lossless Compression and Lossy Compression

18.) Discrete Cosine Transformation, Quantization, and Run-length Encoding.

1.) a.) Frequency Division Multiplexing has the 2 advantages of being simple and

having the freedom of not needed every device to be together in the same place. Noise problems because of using analog signals, and limited frequency ranges, are some downsides of using this technique.

b.) Synchronous Time Division Multiplexing has the advantage of using digital signal

reducing noise interference. It’s also a straightforward technique to implement. It does fall short in that it potentially can waste bandwidth and only uses T-1 and SONET standards.

c.) Statistical Time Division Multiplexing has 2 advantages: Much more efficient at

using bandwidth and also the packets sent don’t have a fixed size, they can vary in length. It’s disadvantages: Quite a bit more complex than synchronous time division, and the packets sent can vary so their is no consistency in the size of packets.

d.) Wavelength Division Multiplexing has the 2 advantages of having a very high

capacities of data to be transferred. It also has the advantage also of being scalable. It lacks in the fact that it’s very expensive and quite a bit more complex

9.) The telephone company could implement Wavelength Division Multiplexing since

fiber-optic cable is already being used to transfer the data.

17.) DSL that a company uses is only different from DSL that home users subscribe to

because there are less subchannels being sent through the medium.

18.) You’ll most likely want to use lossless compression.

20.) A bank statement cannot be JPEG compressed because JPEG compression works by changing the pixel values. So unless the bank statement is in the form of an image, JPEG compression is not a viable compression.