1. What does the abbreviation ASCII stand for?  
American Standard Code for Information Interchange

2. What is the primary advantage of binary coding over direct transmission?  
Better noise immunity.

3. What is the name of the code where only 1 bit changes from one level to the next?  
Gray code.

4. What is the resolution of a 12-bit A/D converter where the maximum input voltage is 3.7V and the minimum input voltage is 1.2V? 

5. If the dynamic range of a signal is 78dB what is the number of bits needed in the A/D converter?  
13

6. What is the minimum A/D sample frequency if the highest signal frequency is 18kHz?  
36k

7. If there are 2168 levels to be represented, how many bits are needed in the sample?  
12

8. What is the dynamic range of a PCM system of 12 bits?  
72dB

9. If 1.25 million bits were sent and 5 bits were in error what was the Bit Error Rate?  
$4\times10^{-6}$

10. Convert 0.00001 watts to dbm.  
-20dbm

11. Determine the voltage level equivalent to -105dBmV.

12. If 4 bits are used to send codes where only 3.6 bits are needed what is the efficiency? 90%

13. What is the energy per bit transmitted if the transmitter power is 50 watts and the bit rate is 54M bits per second?  
0.926 microjoules
14. What type of modulation is represented in this vector constellation? 
QPSK

15. OFDM utilizes what to transport information in from one particular user to another? 
OFDM utilizes multiple subcarriers to transport information in from one particular user to another.

16. What is one positive characteristic of OFDM? 
The benefits of OFDM are high spectral efficiency, resiliency to RF interference, and lower multi-path distortion.

17. If the S/N ratio is 511 to 1 and the BW= 3kHz, what is the channel capacity? 
27kbps

18. If the channel bit rate is 40kbps what is minimum channel bandwidth? 
80kHz

19. For these Hamming distance of 10 determine the number of extra bits needed.

20. How does FSK work? 
The modulating wave shifts the output between two set frequencies.

21. What is the constellation shown below called? 
16QAM

22. How many digital telephone channels can be packed into 1.544MHz? 
24
23. What modulation technique is being used to transmit this data? BPSK

24. What type of wave is propagated by a waveguide? Electromagnetic

25. What is a basic mode of switching digital data? Circuit, message or packet

26. What frame frequency is adequate to prevent flicker? 60 per second

27. What is the vertical resolution for U.S. NTSC television? 339 horizontal lines

28. What is an estimation of how long a fiber optic cable can be for a given bit rate and dispersion for successful data communication referred to as? Power budget