

## **Home Work # 8**

1. Explain why any binary-type code is noise-resistant, and explain why an enormous power increase is required when a more complex code is used.
2. What is the fundamental difference between pulse modulation, on the one hand and frequency and amplitude modulation on the other?
3. What is pulse-width modulation? What other names does it have? How is it demodulated?
4. Explain fully what pulse-code modulation is. Draw one complete cycle of some irregular waveform, and show how it is quantized, using eight standard levels.
5. Explain why PCM is more noise-resistant than the other forms of pulse modulation.
6. What is companding? Why is it used? Why is it preferable to quantizing with tapered steps? Illustrate your answer with a sketch of typical companding curves.
7. What are the advantages and applications of pulse-code modulation?
8. Calculate the minimum number of bits of information which must be given to permit the correct selection of one event out of (a) 32 and (b) 47 equiprobable events.
9. What is the number of bits of information required to indicate the correct selection of 3 independent, consecutive events out of 75 equiprobable events?