Name of Course: DIGITAL COMMUNICATION SYSTEM

Course code: (22428)   **Unit Test: I**

Semester:IV   **Course - DCS**

Programme : EJ

Unit 1   Digital communication system and coding methods (18 Marks)

2   Marks Questions

1. State four advantages of digital communication.
2. State Shannon Hartley's theorem.
3. Define error? List different types of error.
4. 4. Define   a) Entropy   b)Rate of information.
5. Define Line coding .give classification of line coding.
6. Calculate number of errors detected and corrected if hamming distance is 8.
7. Define a) Hamming weight b) Hamming distance.

4   Marks Questions

1. Draw the block diagram of digital communication system and state the function of source encoder and channel encoder.
2. Compare any four channel with help of following parameter 1.type of channel 2.repeater distance 3 bit rate or band width 4 application
3. Using Shannon Hartley's theorem calculate channel capacity for the channel having band width 10khz and signal to noise ratio 20 db.
4. A discrete memory less source has five message symbols A,B,C,D,E with probabilities 0.4,0.2,0.2,0.1 and0.1respectively derive Huffman code for above source and find average length and coding efficiency of code word.
5. List various error detection methods .explain any one in detail withj example.
6. Describe parity checking method with example . list limitations of this methods.
7. List steps involved in creating checksum
8. Describe the working of CRC generator and checker with block diagram.
9. Generate CRC code word for the data bits 110010101 and the divisor is 10101
10. Draw the waveforms for a binary sequence 10110011 for following signal codes. 1 polar RZ .2 unipolar NRZ . 3 split phase Manchester. 4 polar quaternary.

11. Draw the waveforms for a binary sequence 10101101 for following signal codes. 1 polar NRZ .2 bipolar AMI (RZ). 3 differential Manchester 4 polar quaternary.
12. Encode the databits 1110 in to a seven bit even parity hamming code
13. Encode the databits 1010 in to a seven bit odd parity hamming code.
14. If the 7- bit hamming code word received by a receiver is 1011011. Assuming even parity check received code word if wrong write correct code word.

Unit 2 PULSE CODE MODULATION (16 MARKS)

2 Marks Questions

1. State the sampling theorem and find out sampling frequency for the modulating signal of 4KHz.
2. Define sampling and list its types.
3. Define quantisation and quantisation noise.
4. What is companding ? Draw companding curve.
5. State 4 advantages of pcm.
6. Define aliasing effect with diagram.

4 Marks Questions

1. Draw block diagram of pcm transmitter ,state the function of each block.
2. Draw block diagram of pcm transmitter and sketch the waveforms.
3. List advantages of pcm and states it's application.
4. Describe the working of Delta modulator with block diagram and waveforms.
5. Describe the working of DM receiver with block diagram.
6. Describe slope overload error and granular noise present in DM with waveforms.
7. List advantages and disadvantages of DM.
8. Describe the working of ADM with block diagram and waveforms.
9. List advantages and disadvantages of ADM .
10. State the need of DPCM? And function of predictor.
11. Draw DPCM transmitter and receiver .
12. Compare PCM and DPCM.
13. Describe quantisation process with waveforms.
14. Describe companding process with waveforms.