

Anna University Exams – Regulation 2017
Important Questions – 3rd Semester BE/BTECH
EC8394 - Analog and Digital Communication

UNIT-1

1. With the help of mathematical expression explain about amplitude modulation, its generation and detection.
2. With the help of neat block diagram explain about the generation of SSBSC wave and demodulation.
3. Compare AM, FM and PM.
4. Discuss the various SSB techniques

UNIT –II

1. Compare the various Pulse modulation techniques (PAM – PTM – PCM)
2. Explain about various operations performed in the transmitter and receiver of PCM system
3. Explain the concept of Data communication circuits using a basic block diagram
4. Discuss about the generation of PAM and its demodulation.
5. For a BPSK modulator with a Carrier frequency of 70 MHz and an input bit rate of 10 Mbps, determine the maximum and minimum upper and lower side frequencies, draw the output spectrum, determine the minimum Nyquist bandwidth, and calculate the baud
6. Design a PCM system with suitable blocks with the maximum number of bits per sample, minimum sampling rate and bit transmission rate for the following parameters. Information is in an analog waveform with maximum frequency 3 kHz and the number of pulse level is $M=16$.

UNIT –III

1. Describe the generation and detection of binary FSK signal with necessary diagram and equation
2. Explain in detail about the operation of QPSK transmitter with necessary diagrams.
3. Explain the working of 16 QAM transmitter with a block diagram and necessary diagrams.
4. Draw the QPSK and 8-QAM wave forms for the bit stream 1001110001010101 Note: If needed discard the bits to a minimum extend
5. A data bit sequence consists of the following string of bits 10 11 10 10. Analyze and draw the nature of waveform transmitted by BPSK transmitter
6. For a BPSK modulator with a Carrier frequency of 70 MHz and an input bit rate of 10 Mbps, determine the maximum and minimum upper and lower side frequencies, draw the output spectrum, determine the minimum Nyquist bandwidth, and calculate the baud

UNIT –IV

1. The source of information A generates the symbols { A0, A1, A2, A3 and A4} with the corresponding probabilities {0.4,0.3,0.15,0.1 and 0.05}. Encoding the source symbols using binary encoder and Shannon-Fanon encoder and compare its efficiency
2. The generator polynomial of a (15,11) Hamming code is given by $g(a)= 1+x+x^2$. Design encoder and syndrome calculator for this code using systematic form.
3. Draw and explain the generalized (i) (n,k) cyclic encoder to implement an encoding procedure for a (n,k) cyclic code in systematic form (ii)syndrome calculator and properties of syndrome polynomial.
4. Write short notes on ARQ Techniques and discuss its merits & demerits.
5. State the Source coding theorem and mutual information

UNIT –V

1. Explain the function of each block in GSM also the advantages and disadvantages of GSM
2. Illustrate the concepts involved in CDMA Techniques. .

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3. Discuss in detail about Bluetooth technology. Discuss how the cellular communication has evolved over different generation of technology.
4. Identify the Multiple Access used in digital cellular system and explain in detail and also mention the technique used in analog cellular system.
5. List the various application and types of satellites for satellite communication and explain with a real time application.