H.T.No. | | | | | | | | | | |

**Code No: EC1530** **GEC-R14**

# III B. Tech I Semester Regular Examinations, November 2016

# DIGITAL COMMUNICATIONS

**(Electronics and Communication Engineering)**

**Time: 3 Hours** **Max. Marks: 60**

**Note:** All Questions from **PART-A** are to be answered at one place.
Answer any **FOUR** questions from **PART-B.** All Questions carry equal Marks.

## PART-A

**6 × 2 = 12M**

1. What are the noises in PCM ?
2. Define ASK.
3. What is meant by coherent ASK?
4. Define information rate.
5. How syndrome is calculated in Hamming codes and cyclic codes?
6. What is the difference between Block codes and Convolutional codes?

## PART-B

**4 × 12 = 48M**

1. a) Describe the μ-Law and A-Law in PCM (6M)
   b) Discuss the uniform and non uniform quantization and compare them. (6M)
2. a) Derive an expression for the spectrum of BPSK and sketch. (6M)
   b) Draw and explain the signal space representation of the QPSK. List the advantages of it. (6M)
3. a) Obtain the probability error for BPSK. (6M)
   b) What is a Matched filter? How it differs from an optimum filter. Derive an expression for impulse response of the Matched filter. (6M)
4. a) Explain the Huffman coding technique with example? (6M)
   b) State and prove the properties of Entropy. (6M)
5. a) Give the matrix description of the Linear Block codes. (6M)
   b) Explain the concept of Binary Cyclic codes in detail. (6M)
6. a) Explain the Sequential Decoding for Convolutional code in detail. (6M)
   b) Discuss the Vitterbi algorithm with example. (6M)

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