PVP 12

Code: **ECMC1T6B**

I M.Tech - I Semester – Regular/Supplementary Examinations
January 2017

CODING THEORY AND PRACTICE
(MICROWAVE & COMMUNICATION ENGINEERING)

Duration: 3 hours Max. Marks: 70

Answer any FIVE questions. All questions carry equal marks

1. a) A source emits one of four symbols S0, S1, S2 and S3 with probabilities 1/3, 1/4, 1/6 and 1/4 respectively. The successive symbols emitted by the source are statistically independent. Calculate the entropy of the source. 7 M

   b) State and prove channel coding theorem. 7 M

2. a) Compare the performance of uncoded and coded systems. 7 M

   b) Differentiate error detection and error correction. Explain any error control code with an example. 7 M

3. Explain the structural properties of convolution codes in detail. 14 M

4. a) Explain the concept of block coding with an example. 7 M

b) Discuss the properties of error correction. 7 M

5. a) Define and explain the following: groups and rings. 7 M

b) Construct the tables for GF(5) and GF(7). 7 M

6. What is binary cyclic code? Describe the features of encoder and decoder used for cyclic codes using an (h-K) bit shift register. 14 M

7. a) Explain the frequency domain description of BCH code. 7 M

b) Explain the decoding algorithm for R S code. 7 M

8. a) Give and explain the conceptual operation of code concatenating. 7 M

b) Discuss about the codes for magnetic recording. 7 M