Total No. of Questions :8] *[Total No. of Printed Pages :2*

Roll No .....

MCSE-202

M.E./M.Tech. II Semester

Examination, December 2016

Information Theory, Coding and Cryptography

Time : Three Hours

Maximum Marks : 70

Note : Attempt any five questions. All questions carry equal marks.

1. a) Discuss Shannon's theorem in detail.
   b) Discuss the cumulative Gaussian probability.

2. a) Explain Hidden Markov model. What is the use of this model? Also discuss its properties.
   b) Write a brief notes on CRC codes.

3. a) What are BCH codes? Discuss the steps for decoding BCH codes.
   b) Describe the discrete birth death processes. What are its properties? Using an example, show how the process may be applied to queuing theory.

4. a) Differentiate between Bernoulli processes and Poisson processes.
   b) Discuss soft decision viterbi algorithm.

5. a) Explain RSA algorithm with an example.
   b) Differentiate between the following terms.
      i) Confusion and diffusion
      ii) Substitution cipher and transposition cipher.

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6. What is the role of the key in the DES (Data Encryption Standard)? What are the three modes supported by the DES? Where is each a good choice?

7. a) Discuss briefly the coding and decoding of LDPC codes.
   b) What is reed - Solomon code? Describe the decoding process.

8. Write short notes on any two :
   a) Huffman coding
   b) Parity check matrix
   c) Sequential decoding

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