

Roll No .....

**IT-8003 (3) (CBGS)**  
**B.E. VIII Semester Examination, June 2020**  
**Choice Based Grading System (CBGS)**  
**Information Theory and Coding**  
*Time : Three Hours*

**Maximum Marks : 70**

- Note:** i) Attempt any five questions.  
ii) All questions carry equal marks.

1. a) What is Entropy? Show that Entropy is maximum when all messages are equi-probable. Assume  $M=2$ . 7  
b) Describe Huffman coding procedure with example. 7
2. a) What is Hamming distance? Explain how error detection and correction depends on Hamming distance. 7  
b) The hamming code sequence 1100110 is transmitted and due to error in one position the received code is 1110110. Locate the position of error bit using parity checks and give the method for obtaining the correct sequence. 7
3. a) Discuss about Mutual Information and its properties. 7  
b) What is Convolution code? Explain encoding and decoding for convolution codes. 7
4. a) Explain the LZW compression algorithm with example. 7  
b) Explain adaptive Huffman coding for the Message "Malayalam". 7
5. a) Explain masking techniques in detail. 7  
b) Explain the compression principles for P and B frames. 7
6. a) What do you understand by Image compression? Explain anyone techniques of JPEG Image compression in detail. 7  
b) Discuss in detail about Motion Compression technique with suitable diagram. 7
7. a) With neat illustrations, explain Graphical interchange format. 7  
b) Explain Arithmetic coding technique with suitable example. 7
8. Write short notes on any two of the followings : 14
  - a) Shannon Fano Coding
  - b) Viterbi Algorithm
  - c) Linear Predictive Coding
  - d) JPEG Standards

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