

D 23472

Name .....

Reg. No. ....



FIFTH SEMESTER B.TECH. (ENGINEERING) DEGREE EXAMINATION  
DECEMBER 2011

IT 04 504—INFORMATION THEORY AND CODING

(2004 Admissions)

Time : Three Hours

Maximum : 100 Marks

*Answer all questions.*

1. (a) Define Entropy and mention its property.  
(b) Explain Huffman coding.  
(c) Define the term Syndrome.  
(d) Explain error detection capabilities.  
(e) Define the Axioms of a group.  
(f) Define Vector space.  
(g) Give an example of convolutional code.  
(h) Define Decoding with an example.  

(8 × 5 = 40 marks)
  2. (a) Explain data compression techniques.  

*Or*

(b) Explain the Channel coding theorem and Information capacity theorem.  

(15 marks)
  3. (a) What is syndrome ? How is it related with error detection mechanism ?  

*Or*

(b) Explain occasion in which error detection code is suitable than error detection and correction code and also give occasion in which error detection and correction code is needed.  

(15 marks)
  4. (a) Explain the construction of Galois field.  

*Or*

(b) Explain the importance of Reed-Solomon codes.  

(15 marks)
  5. (a) Explain maximum likelihood decoding.  

*Or*

(b) Explain interleaved convolutional codes.  

(15 marks)
- [4 × 15 = 60 marks]