

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**B.E. - SEMESTER – VIII EXAMINATION – OCTOBER 2012**

**Subject Code: 181602****Date: 29/10/2012****Subject Name: Data Compression****Time: 02.30pm - 05.00pm****Total Marks: 70****Instructions:**

1. Attempt any five questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) Explain Shannon-Fano Algorithm for data compression **07**  
(b) Draw and explain steps for Huffman coding with the help of example. **07**
- Q.2** (a) Explain modeling and coding with the help of suitable examples. **07**  
(b) Explain LZSS algorithm. **07**
- OR**
- (b) Explain LZ77 algorithm and problems with it. **07**
- Q.3** (a) What are the various applications of Huffman Coding? Also explain non binary Huffman code. **07**  
(b) What do you mean by lossless compression? Compare lossless compression with lossy compression. **07**
- OR**
- Q.3** (a) Consider alphabets A,B,C,D,E,F,G,H having probabilities  $P(x_i)$  given as  $1/2, 1/4, 1/16, 1/16, 1/32, 1/32, 1/32, 1/32$ . Design the Huffman code. **07**  
(b) What is Quantization? Why do we do quantization in JPEG compression? **07**
- Q.4** (a) Explain the process of vector quantization. **07**  
(b) With the help of example explain how we can implement DCT in JPEG compression. **07**
- OR**
- Q.4** (a) Explain various types of dictionary techniques of Encoding. Where they can be used? **07**  
(b) How can we do lossless compression of sound? Explain various techniques. **07**
- Q.5** Write a note on followings (Any 4) **14**  
(a) Inverse DCT  
(b) Silence Compression  
(c) Image compression  
(d) Speech compression  
(e) Adaptive coding

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