

Seat No. : _____



P-234

**B.E. Semester – VII Regular (New) (CE) Examination
January – 2010**

Elective-II : Data Compression (New Course)

Time : 3 Hours]

[Max. Marks : 100

- Instructions :**
- (1) **Q.1** is compulsory. Attempt any **four** from **Q.2** to **Q.7**.
 - (2) Figure to the right indicate full marks.
 - (3) Assume suitable data whenever necessary.

1. Answer following questions : 20
 - (1) Differentiate between modeling and coding.
 - (2) How does adaptive Huffman differ from static Huffman ? What are its applications ?
 - (3) Give the strengths and limitations of arithmetic coding.
 - (4) In adaptive Huffman coding, for multiple occurrences of a same alphabet in single string at different positions, different codes are generated. Justify the statement.

2. (a) What is sibling property ? Explain it with suitable example. 6
 (b) What is uniquely decodable code ? How can you determine it ? 4
 (c) Give the Update procedure with example used in adaptive Huffman coding. 10

3. (a) Perform the Arithmetic coding of the following message. Consider one space between each word. 8

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 (b) Discuss the decoding procedure used in adaptive Huffman coding. 8
 (c) Compare static and dynamic approaches. 4

4. (a) Discuss the integer implementation of encoding procedure for the Arithmetic coding. 10
 (b) Compare the arithmetic coding and Huffman coding. 4
 (c) Explain the concept of sliding window in Dictionary algorithms. 6

5. (a) A sequence is encoded using LZW algorithm and initial dictionary is as :

10

Index	Entry
1	a
2	B
3	r
4	t

The output of the LZW encoder is the following sequence :

3 1 4 6 8 4 2 1 2 5 1 0 6 1 1 1 3 6

Decode this sequence.

- (b) What is role of transforms in compression ? Explain the DCT with example. 8
- (c) Tell about "Greedy Vs. Best" Approach. 2

- 6. (a) Discuss about the application of transform coding to audio compression. 8
- (b) Discuss the LZSS algorithm with suitable example. 8
- (c) Compare the lossy and lossless compression. 4

- 7. (a) Explain the sampling and quantization with example. 8
- (b) Write short note on JPEG compression. 8
- (c) What is Entropy ? What is its significance in Data Compression ? 4

