Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE – SEMESTER – VIII.EXAMINATION – WINTER 2016

Subject Code: 181602 **Date: 20/10/2016**

Subject Name: Data Compression

Time: 02:30 PM to 05:00 PM **Total Marks: 70**

Instructions:

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

Q.1 **(a)** What is data compression? Define lossless and lossy data compression differentiate between these two. **07**

(b) Explain modeling and coding with suitable example. **07**

Q.2 **(a)** Explain Shannon-Fano Algorithm for data compression **07**

(b) Design Huffman code using Huffman tree for the following symbols. **07**

Symbol	A	B	C	D	E	F
Count	30	15	10	8	5	2

OR

(b) For which types of data adaptive Huffman coding is prefer over Huffman code? List out and explain the enhancements **07**

Q.3 **(a)** Explain Arithmetic Coding with example and compare it with Huffman coding. **07**

(b) What is Entropy? Give the significance of entropy in information. Find the first order entropy over an alphabet A={a1,a2,a3,a4} where p(a1)=1/2, p(a2)=1/4, p(a3)=p(a4)=1/8 **07**

OR

Q.3 **(a)** Explain LZ77 with suitable example. **07**

(b) Discuss the modification carried out in LZSS compare to LZ77 **07**

Q.4 **(a)** Explain RLE with example. **07**

(b) What is Dictionary based coding? Differentiate static and adaptive dictionary. **07**

OR

Q.4 **(a)** Explain LZW coding scheme. **07**

(b) Explain using suitable diagram the audio compression technique. **07**

Q.5 **(a)** Explain usage of Discrete Cosine Transformation (DCT) in JPEG. **07**

(b) Write short note on PNG. **07**

OR

Q.5 **(a)** Explain silence compression. **07**

(b) Write short note on JPEG. **07**

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