Seat No.: _____ Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE SEMESTER – VIII(OLD) EXAMINATION – WINTER 2017

Subject Code: 181602 **Date: 02-11-2017**

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? What is the need of Data Compression? Give the difference between lossy and lossless Compression.	**07**
	(b)	What is redundancy of a code? How can you define it and calculate it?	**07**
Q.2	**(a)**	Explain modeling and coding with the help of suitable examples.	**07**
	(b)	What do you understand by information and entropy? Find the first order entropy over an alphabet A={a1,a2,a3,a4} where p(a1)=p(a2)=P(a3)=p(a4)=1/4.	**07**
		OR	
	(b)	Explain Shannon-Fanon Algorithm for data compression. With example.	**07**
Q.3	**(a)**	What are the measures of performance of data compression algorithm?	**07**
	(b)	What is arithmetic coding compare it with Huffman coding and also list the significance of each.	**07**
		OR	
Q.3	**(a)**	Differentiate static and adaptive dictionary coding scheme in details.	**07**
	(b)	Explain LZ78 in brief with example.	**07**
Q.4	**(a)**	What is LZW compression? Explain with the help of an example.	**07**
	(b)	Explain LZSS compression and what are the improvements of LZSS on LZ77?	**07**
		OR	
Q.4	**(a)**	Explain Sampling variable in detail.	**07**
	(b)	Differentiate Greedy v/s Best Possible.	**07**
Q.5	**(a)**	Describe the audio compression with proper diagrams.	**07**
	(b)	With the help of example explain how we can implement DCT in JPEG compression.	**07**
		OR	
Q.5	**(a)**	Explain silence compression in detail.	**07**
	(b)	Explain the quantization in JPEG.	**07**

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