Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE – SEMESTER – VI (NEW).EXAMINATION – WINTER 2016

Subject Code: 2161603 Date: 25/10/2016

Subject Name: Data Compression and data Retrival

Time: 10:30 AM to 01:00 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)**	Explain types of data compression. List out applications of data retrieval.	**07**
	(b)	Explain Markov Model with example.	**07**
Q.2	**(a)**	Consider a source emits letter from a alphabet A={a1,a2,a3,a4} with probability P(a1)=0.3,P(a2)=0.2,P(a3)=0.35,P(a4)=0.15. [I] Find a Huffman code using minimum variance procedure. [II] Find average length of the code.	**07**
	(b)	Write the method to generate a tag in arithmetic coding.	**07**
		OR	
	(b)	Write an encoding algorithm for arithmetic coding.	**07**
Q.3	**(a)**	A sequence is encoded using the LZ77 algorithm. Given that C(a) = 1, C(b) = 2, C(r) = 3, and C(t)= 4, decode the following sequence of triples: <0, 0, 3>,< 0, 0, 1>,<0, 0, 4>,< 2, 8, 2>,< 3, 1, 2>,<0, 0, 3>,<6, 4, 4>,<9,5, 4> Assume that the size of the window is 20 and the size of the look-ahead buffer is 10. Encode the decoded sequence and make sure you get the same sequence of triples.	**07**
	(b)	Explain Tunstall Codes with example.	**07**
		OR	
Q.3	**(a)**	Explain LZ78 encoding procedure.	**07**
	(b)	Explain Prediction with partial match method.	**07**
Q.4	**(a)**	List out different types of quantizer. Explain quantization problem with example.	**07**
	(b)	Explain LZW method with example.	**07**
		OR	
Q.4	**(a)**	Explain adaptive quantization with its two approaches.	**07**
	(b)	Write a short note on tree structure vector quantizer.	**07**
Q.5	**(a)**	Explain the algorithm of intersecting two postings lists in data retrieval.	**07**
	(b)	Write a short note on : I) Tokenization II) Stop words Removal	**07**
		OR	
Q.5	**(a)**	Write a short note on : I) Positional Index II) data-centric XML retrieval	**07**
	(b)	Write a short note on : CALIC	**07**

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