GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER–VI (NEW) - EXAMINATION – SUMMER 2017

Subject Code: 2161603   **Date: 03/05/2017**

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.**
4. **Assume /b as blank space**

MARKS

Q.1		**Define Following.**	**14**
	1	Compression Ratio.	
	2	Vector Quantization.	
	3	Entropy.	
	4	LZ77.	
	5	Huffman Code.	
	6	HINT.	
	7	Data Retrieval.	
	8	LZW.	
	9	Query Optimization.	
	10	Distortion.	
	11	Self Information.	
	12	Compare Lossless and Lossy Data Compression.	
	13	Run Length Coding.	
	14	Rice Code.	
Q.2	**(a)**	Write a procedure to generate Adaptive Huffman Code.	**03**
	(b)	Write a short note on Uniquely decodable codes.	**04**
	(c)	Explain Huffman Coding with respect to minimum variance Huffman codes with separate trees.	**07**

OR

	(c)	Explain modeling and coding. Explain how this will help to reduce entropy with suitable example.	**07**
Q.3	**(a)**	Write a different Application of Huffman Coding.	**03**
	(b)	Write a short note on Skip Pointer with example.	**04**
	(c)	Encode "acadebaa" using Adaptive Huffman code. Derive, Codes and final tree.	**07**

OR

Q.3	**(a)**	Write a short note on Prefix Code.	**03**
	(b)	Write a short note on Phrase queries with example.	**04**
	(c)	Encode and Decode "AABBC" with arithmetic coding. (P(A)=0.6, P(B)=0.3, P(C)=0.1)	**07**
Q.4	**(a)**	Explain CALIC.	**03**
	(b)	Generate GOLOMB code for m=5 and n=4 to 10.	**04**
	(c)	Encode the following sequence using Diagram Coding of Static Dictionary method (Generate for 3 bit): abracadabra	**07**

Q.4	**(a)**	Explain OLD JPEG Standard.	**03**
	(b)	Generate TUNSTALL code P(A)=0.4, P(B)=0.3, P(C)=0.3 and n=3 bits.	**04**
	(c)	Given an initial dictionary Index 1=w, 2=a, 3=b, encode the following message using the LZ78 algorithm: wabba*b*wabba*b*wabba*b*wabba*b*woo*b*woo*b*woo.	**07**
Q.5	**(a)**	Explain prediction with partial match in short.	**03**
	(b)	Explain Vector Space Model in XML.	**04**
	(c)	Encode the sequence this*b*is*b*the using Burrows-Wheeler transform and move to front coding.	**07**

OR

Q.5	**(a)**	Explain Tokenization.	**03**
	(b)	Explain Information Retrieval in detail.	**04**
	(c)	Explain how Vector Quantization is better than Scalar Quantization with example.	**07**

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