

Enrolment No./Seat No_____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE- SEMESTER-VI (NEW) EXAMINATION – WINTER 2024

Subject Code:2161603

Date:28-11-2024

Subject Name:Data Compression and data Retrieval

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.
4. Simple and non-programmable scientific calculators are allowed.

		MARKS
Q.1	(a) Define "Data Compression" , "Uniquely decodable code", "Entropy"	03
	(b) Define modeling and coding. Differentiate with the help of example.	04
	(c) Explain Huffman Coding with suitable example.	07
Q.2	(a) Differentiate : Shanon Fano Code vs Huffman Code.	03
	(b) Explain Tunstall codes in brief.	04
	(c) Discuss update procedure of adaptive huffman coding with suitable example.	07
	OR	
	(c) Define Data and Redundancy. List type of Redundancies.	07
Q.3	(a) What is sibling property? Where it is used?	03
	(b) What are Prefix codes? Explain with the help of an example.	04
	(c) Explain sliding window compression with the help of an example.	07
	OR	
Q.3	(a) Differentiate between static and dynamic dictionary	03
	(b) Explain prediction with partial match (PPM)	04
	(c) Explain Markov model with example.	07
Q.4	(a) Explain the significance of discrete cosine transform (DCT) in JPEG Compression.	03
	(b) Compare Uniform Quantization with Non Uniform Quantization.	04
	(c) Explain JPEG.	07
	OR	
Q.4	(a) Explain CALIC	03
	(b) Compare Text-centric vs. data-centric XML retrieval methods	04
	(c) Write a shot notes: i) JPEG Compression ii) Sibling Property	07
Q.5	(a) Explain Normalization	03
	(b) Write a note on GOLOMB code.	04
	(c) Explain Lemmatization and Stemming in detail.	07
	OR	
Q.5	(a) Compare and Contrast: Uniform Quantization v/s Non Uniform Quantization	03
	(b) Explain challenges in XML information retrieval.	04
	(c) Explain Tree-Structured Vector Quantizers.	07
