

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -3 EXAMINATIONS-DECEMBER 2025

B.Tech-V Semester (CSE/IT)

COURSE CODE (CREDITS): 18B1WCI532 (2)

MAX. MARKS: 35

COURSE NAME: DATA COMPRESSION

COURSE INSTRUCTORS: Dr. Praveen Modi

MAX. TIME: 02:00 Hr

Note: All questions are compulsory. Marks are indicated against each question in square brackets. Write the answer of the question belonging to the same part in the same order.

Q. No	Question	CO	Marks
Q1.	(a) Write the difference between Run Length, Dictionary Encoding & Scalar Encoding techniques?	1	2
	(b) What will be run length encoding for the following binary message, if $k = 4$ bits? "10010000000011110000000000110"	1	3
Q2	(a) What will be BWT encoded message for "INFORMATION"?	2	3
	(b) What will be the move to front encoded message for "UNIVERSITY"?	2	3
Q3	(a) Find the Golumb Encoded message for following values of $N = 53, 27, 37$, and 61 , if the value of $M = 6$?	3	4
	(b) Find the arithmetic code for message "CODE", if the $P(C) = 0.2$, $P(D) = 0.35$, $P(E) = 0.4$, and $P(O) = 0.05$?	3	4
Q4	(a) Find the sequence of LZW codes for message "abracadabra" with window size is 10 in which the look ahead buffer size is 4?	4	4
	(b) Find the sequence of LZ78 codes for message "MISSIPII" with window size is 8 in which the look ahead buffer size is 3?	4	4
Q5	(a) In vector quantization technique, what will be the compression ratio for the block size is 4×16 , & the size of code book is 512?	5	2
	(b) If the training vector is (5,3,9,6) & code word are $C1(1,3,5,6)$, $C2(1,2,5,2)$, $C3(1,3,1,5)$ $C4(9,1,7,5)$, which is the closest codeword?	5	2
	(c) What will be the code word for following Pixel values & their frequency?	5	4

	Pixel Values	15	10	7	11	9	10	8	12
	Frequency	10	20	30	10	30	20	15	15

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