

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

MAKEUP EXAMINATION-NOVEMBER 2025

B.Tech-V Semester (CSE/IT)

COURSE CODE (CREDITS): 18B1WCI532 (2)

MAX. MARKS: 25

COURSE NAME: DATA COMPRESSION

COURSE INSTRUCTORS: Dr. Praveen Modi

MAX. TIME: 1 Hr

Note: (a) All questions are compulsory.

(b) The candidate is allowed to make Suitable numeric assumptions wherever required for solving problems

Q.No	Question	CO	Marks
Q1	a. Write the major drawback of Run-Length Encoding? b. Find the RLE for following binary message with 4 bits? "100000100000000111000000110000"	1	1 2
Q2	a. What are the advantages of arithmetic encoding method over tunstall encoding method? b. Find the arithmetic code for $P(a) = 0.15$, $P(b) = 0.04$, $P(c) = 0.26$, $P(d) = 0.05$, $P(e) = 0.50$ of the symbols for message "decade"?	2	1 3
Q3	a. Find the Golumb Code for $N = 53, 47, 39, 61, M = 13$? b. What will be the tunstall codes $P(a) = 0.52$, $P(b) = 0.27$, $P(c) = 0.15$, $P(d) = 0.06$, $n = 4$ bits?	3	2 3
Q4	a. Write the comparison between LZ77 & LZ78 dictionary based method? b. A sequence is encoded using the LZ77 algorithm. Given that $C(a) = 1$, $C(b) = 2$, $C(r) = 3$, $C(t) = 4$. Decode the following sequence of triples. $\langle 0, 0, 3 \rangle \langle 0, 0, 1 \rangle \langle 0, 0, 4 \rangle \langle 2, 8, 2 \rangle \langle 3, 1, 2 \rangle \langle 0, 0, 3 \rangle \langle 6, 4, 4 \rangle \langle 9, 5, 4 \rangle$ Assume that the size of the window is 20, the size of the look-ahead buffer is 10?	3	2 6
Q5	Which is the 10 th index entry in the encoding table using LZ78 for message "bcababacbbcababacabbcbba"?	3	5