

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT
TEST-T1 EXAMINATION-SEPTEMBER 2022

B.Tech Vth Semester

Course Code: 18B1WCI532
Course Name: Data Compression
Course Credits: 02

Max Marks: 15

Max Time: 01:00 Hours

Note: All questions are compulsory. Carrying of mobile phone during examination will be treated as case of unfair means

- Q1. (a) Write the difference between Golomb and Tunstall techniques and the performance metrics used to evaluate the techniques? CO [3] (1)
- (b) Calculate the entropy, Huffman code & average Code length for following symbols with probabilities $P(a) = 0.15$, $P(b) = 0.04$, $P(c) = 0.26$, $P(d) = 0.05$, $P(e) = 0.50$? CO [2] (2)
- Q2. (a) Consider a message "**MISSISSIPPI IN MISSISSIPPI**". Find the compression ratio if variable length encoding is used over fixed length encoding? Consider the ASCII character set in sequence? Don't assume Huffman encoding method? CO[1] (1)
- (b) Find the compressed message using tunstall encoding method for above question 2 part (a)? CO [3] (2)
- Q3. (a) Find the entropy for $P(a) = 0.2$, $P(b) = 0.22$, $P(c) = 0.25$, $P(d) = 0.33$? CO [1] (1.5)
- (b) Find the golomb code for values of $N = 57, 34, 45, 61$, and $M = 6$? CO [3] (1.5)
- Q4. What will be the tunstall code for "abb" if $P(a)=0.52, P(b)=0.27, P(c)=0.15, P(d)=0.06, n=4$? CO [3] (3)
- Q5. (a) Find the compressed message using run length encoding using $k = 3$ bits for the "000011000011000001110011000110101010011"? CO [2] (1)
- (b) Find the Golomb Code using $m = 5$ for the output of above question 5 part (a)? CO [3] (2)