

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT
TEST-T3 EXAMINATION-December 2022
B.Tech Vth Semester

Max Marks: 35

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

Max Time: 02:00 Hours

Note: All questions are compulsory. Carrying of mobile phone during examination will be treated as case of unfair means. Write the answer in the same order belonging to the same question and same section

Section -I

- Q1. What is the range of PSNR (DB) to in-distinguish the received image from original image? Also calculate the PSNR if the difference between sent image pixels & received image pixels value is 1? CO [6] (2)
- Q2. How many LZ77 codes will be form for 'n' length message, W is the window size, if all symbols are same and if all symbols are distinct? CO [6] (2)
- Q3. Find the value of Q, R, K, & C, if N = 954, M= 37 using Goloumb Coding? CO [2] (1)

Section - II

- Q4. Find the size of minimum length encoded message using Huffman Coding for any palindrome string of length 2n? CO [3] (3)
- Q5. Which Huffman properties are (are) not satisfied for following codes given to the alphabets: CO [3] (1+2)
 a = 0, b = 01, c = 10, d = 100, e = 010.
 What necessary changes should be in the codes to satisfy the property, write the codes?
- Q6. Find the average bit rate when n = 3, P(aaa)= 0.343, P(b)=0.2, P(ab)=0.14,P(ac)= 0.101,and code sequence are 000,001,010,101 respectively, using tunstall coding? CO [3] (4)

Section -III

- Q7. What will be the BWT code & index value for Message "KISSAN"? CO [4] (5)
- Q8. 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 [4] (5)
- Q9. If C(0) = 1, C(1)=4, D=300, X[0]=[0,2],X[1]=[3,7].What will be the new code Words C(0) & C(1)? CO [5] (5)

Pixel Values	0	1	2	3	4	5	6	7
Frequency	100	100	100	40	30	20	10	0

- Q10. (A) How many bits in the run length encoding using k = 3 bits for the message "00001100000010111011000000110010"? (1+1+1+2)
CO [1]
- (B) In vector quantization technique, what will be the compression ratio for the block size is 5×32 , & the size of code book is 1024? CO [6]
- (C) 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? CO [6]

(D) What will be the code word for following Pixel values & their frequency?

CO [6]

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