

Subject code: 2161603

Date: 22/03/2018

Subject Name: Data Compression &amp; Data Retrieval

Time : 2:00 pm –3:00 pm

Total Marks: 20

**Instructions:**

1. Make Suitable assumptions whenever necessary.
2. Figures to the right indicate full marks.

- a) Compare Lossless Compression with Lossy Compression. [2]
- b) Write a short note on prefix code. [2]
- c) Explain types of models in brief. [4]
- (a) Find the Huffman Code for the following symbol and frequency count. [3]

Symbol	Count
G	15
R	7
O	6
U	6
P	5

- (b) Encode "ACADE" using Adaptive Huffman algorithm. Derive Output string and final tree. [3]

**OR**

- (b) Calculate tag value for following string using arithmetic coding. [3]  
 ABACB  
 $P(A) = 0.2$ ,  $P(B) = 0.3$ ,  $P(C) = 0.5$

- (a) Generate GOLOMB code for  $m = 5$  and  $n = 5$  to 10. [3]
- (b) Encode the string "luke luck licks lakes" using the LZ78 algorithm (Consider space as letter). [3]

**OR**

- (a) Generate TUNSTALL code  $P(A)=0.4$ ,  $P(B)=0.3$ ,  $P(C)=0.3$  and  $n=3$  bits. [3]
- (b) Decode following LZ77 triples and retrieve original string. [3]  
 Consider source alphabet = {a, b, c, d},  
 Search buffer size = 5 Characters, Window size = 10 characters.  
 LZ77 Triples:  $\langle 0,0,b \rangle$ ,  $\langle 0,0,a \rangle$ ,  $\langle 0,0,d \rangle$ ,  $\langle 2,5,b \rangle$ ,  $\langle 2,1,a \rangle$ ,  $\langle 4,3,b \rangle$ ,  $\langle 3,8,c \rangle$

\*\*\*\*\*Best of Luck\*\*\*\*\*