


National University of Computer and Emerging Sciences, Lahore Campus

	Course:	Information Retrieval	Course Code:	CS317
	Program:	BS(Computer Science)	Semester:	Fall 2019
	Duration:	25 Minutes	Total Marks:	10
	Paper Date:	3-Sept-18	Weight	3.3%
	Section:	B	Page(s):	2
	Exam:	Quiz 1	Roll No:	

Question 1 [4 marks]

Let V = Vocabulary size,

N = Total number of documents

AveD = Average Document Length

$|q|$ = query length

$|\text{posting}|$ = length of posting list of a word

Write time and space complexity of different indexing methods in this table.

	Forward Index	Inverted Index
Time Complexity for relevant document retrieval	$ q * N * \text{AveD}$	$ q * \text{posting} $ OR constant OR $ q $
space Complexity	$N * \text{AveD}$	$N * \text{AveD}$

Question 2

Suppose a company needs to store large number of financial figures. The value of numbers range from 1 to 7. Which of the following two options will be more space efficient for encoding these numbers. Why? [2 Mark]

- a) Elias Gamma Encoding
- b) 8 bit Fixed Length Encoding

Solution

Elias Gamma is more space efficient since largest number is 7 and it will take 5 bits whereas fixed length will assign 8 bits to each number

Name _____
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Question 3

Decode following into integers using Elias Gamma decoding. [4 Marks]

11100100011001

How many numbers are encoded here?

Solution

4 numbers

1110010 | 0 | 0 | 11001

1110,010 | 0 | 0 | 110,01

First number = $1110010 = 1110,010 = 1010 = 10$

Second number = $0 = 1$

Third number = $0 = 1$

Fourth number = $11001 = 110,01 = 101 = 5$

So 4 numbers are 10,1,1,5