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| **National University of Computer and Emerging Sciences, Lahore Campus** | | | | |
| C:\Users\saif\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.Word\final design.jpg | **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 = Vocabulory size,

N= Total number of documents

AveD = Average Document Length

|q| = query length

|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 \* AveD | |q|\*|posting| OR constant OR  |q| |
| space Complexity | N \* AveD | N \* 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]

1. Elias Gamma Encoding
2. 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

**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