Fast**National University of Computer & Emerging Sciences, Karachi  
Fall-2020 CS-Department  
Assignment 5**

**Deadline 30 May 2020**

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| **Course Code: CS301** | **Course Name: Theory of Automata** |

**Question 1:**

**10 points**

**Conversion of decimal to unary for 0-5 digit.**

**Take any 3 number digit in tape and show me its unary representation on tape.**

**for example:**

Input

|  |
| --- |
| 4 |2| 1 |

Output

|  |
| --- |
| .|B|B|H|1|1|1|1|T|1|1|U|1|B|B|. |

**Question 2 Variation of Turing machine**

**1. create turing machine for a^n b^n with the help of multi track where n>=1.**

**2. create turing machine for wcw with the help pf multi track of alphabet set {a,b}.**

**3. create turing machine for m^2 with the help of multi tape where m>=1.**

**Question 3**

**Property of recursive and recursive enumerable**

**Show me Recursive and Recursive enumerable are closed under these give properties or not.**

**Recursive**

* + **Concatenation**
  + **Kleene closure (star operator)**
  + **Homomorphism, and inverse homomorphism**

**Recursive enumerable.**

* + **Union**
  + **intersection**
  + **concatenation**
  + **Kleene closure**

***BEST OF LUCK!***