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|  | **BAHRIA UNIVERSITY,**  **(Karachi Campus)**  *Department of Software Engineering*  **Assignment # 02 – Spring 2022** |

COURSE TITLE: **Discrete Structures** COURSE CODE: **CSC - 115**

CLASS: **BSE – 2A & 2B** SHIFT: **Morning**

INSTRUCTOR: **Engr. Ammarah Khalid** DATE: 26**th MAy 2022**

MAX. MARKS: **5 Marks** Due Date: **3rd June 2022**

**STUDENT NAME: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ REG # \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**ASSIGNMENT # 02 (CLO – 3)**

**Task # 01:** Write Insertion Sort Algorithm and apply it on the list {80,50,22,34,33,45,75,10}

**Task # 02:** Identify the BIG O notation of Bubble sort and Insertion Sort Algorithm. Explain your answer.

**Task # 03:** Write program in java to generate pseudorandom number using linear congruential generator. xn+1 = (3xn + 2) mod 13 with seed x0 = 1

**Task # 04:** Write program that will use hash function to provide the memory location (without collision) on giving Enrollment no and memory address as input.

**Task # 05:** Write program that takes a message and a positive integer k less than 26, encrypt this message using the shift cipher with key k; and given a message encrypted using a shift cipher with key k, decrypt this message.