**Sinai University**

**Faculty of Information Technology**

**Information and Network Security** **Quiz #1**

## Answer the following Questions[15 marks]

Q1:

a) Encrypt the plain text **"ahlmnprs"** using the play fair algorithm with the keyword **"abrabhr".**

b) Encrypt the plain text "**tvdrsaxuz**" using the Hill cipher algorithm with the key matrix $K = \begin{pmatrix} 17 & 17 & 5 \\ 21 & 18 & 21 \\ 2 & 2 & 19 \end{pmatrix}$

c) Encrypt the plain text **"hlmonsrtz"** using the Vigenere algorithm with the keyword **"lamon".**

d) Encrypt the plain text **"armhopqtuvw"** using the Row scheme with the key **"3 1 2 4".**

Q2: A transposition method is illustrated as follows:

To encrypt a plain text you will swap the first and last characters ( نبدل الحرف الاول مع الاخير) and swap the second character with the penultimate character ( نبدل الثانى مع قبل الاخير) and so on. Write a Python program to implement this method. For example, if the plain text is **"almnorst"** then the cipher text will be **"tsronmla"**

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**Given that : the order of the characters is as follows**

| a | b | c | d | e | f | g | h | i | j | k | l | m |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |

| n | o | p | q | r | s | t | u | v | w | x | y | z |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 |