

Tutorial No- 5

Introduction to security and cryptography.

Q. 1. Use a hill cipher to encipher the message “we live in an insecure world”. Use the following key

$$K = \begin{bmatrix} 03 & 02 \\ 05 & 07 \end{bmatrix}$$

Q. 2. The plaintext “letusmeetnow” and the corresponding ciphertext “HBCDFNOPIKLB” are given. You know that the algorithm is a Hill cipher, but you don’t know the size of the key. Find the key matrix.

Q.3. Using hill cipher technique, encrypt the text “Paymoremoney” using the following key

$$\begin{pmatrix} 17 & 17 & 5 \\ 21 & 18 & 21 \\ 2 & 2 & 19 \end{pmatrix}$$

Q.4 Encrypt the following using play fair cipher using the keyword MONARCHY. “SWARAJ IS MY BIRTH RIGHT”. Use X as blank space.

Q.5 Discuss the properties that are satisfied by Groups, Rings and Fields.

Q.6 Compare Substitution and Transposition techniques. SUBSTITUTION
TRANSPOSITION