1. In vigenere cipher, decrypt this given ciphertext “VJDM XL WPHQBI” using “keyword” as the key.

Plaintext- VJDM XL WPHQBI

Key- KEYWORD

Keystream- KEYWORDKEYWO

**Ciphertext- LFFR DU TFDSFU**

1. In One Time Pad, given the plaintext “numeric” perform character encoding.

**Plaintext- NUMERIC**

**Key- KEYWORD**

N- 13 + K- 10 = 10 **-- X**

U- 20 + E- 4 = 24 **-- Y**

Ciphertext- **XYKAFZF**

M- 12 + Y- 24 = 10 **-- K**

E- 4 + W- 22 = 0 **-- A**

R- 17 + O- 14 = 5 **-- F**

I- 8 + R- 17 = 25 **-- Z**

C- 2 + D- 3 = 23 **-- F**

1. In One Time Pad, given the plaintext “COLLEGE OF SCIENCES” perform character encoding.

**Plaintext- COLLEGE OF SCIENCES**

**Key- SCHOOL REALLY I LIKE**

C- 2 + S- 10 = 20 **-- U**

O- 14 + C- 4 = 16 **-- Q**

L- 11 + H- 24 = 18 **-- S**

L- 11 + O- 22 = 25 **-- Z**

E- 4 + O- 14 = 18 **-- S**

G- 6 + L- 17 = 17 **-- R**

E- 4 + R- 3 = 21 **-- V**

O- 14 + E- 4 =18 **-- S**

Ciphertext- **UQSZSRV SF DNGMYKOW**

F- 5 + A- 0 =5 **-- F**

S- 18 + L- 11 =3 **-- D**

C- 2 + L- 11 =13 **-- N**

I- 8 + Y- 24 =6 **-- G**

E- 4 + I- 8 =12 **-- M**

N- 12 + L- 11 =24 **-- Y**

C- 2 + I- 8 =10 **-- K**

E- 4 + K- 10 =14 **-- O**

S- 18 + E- 4 =22 **-- W**

1. In Rail Fence Transposition, encrypt the following plaintext “ILOVEBEAUTIFULCAKES” using two depth transposition.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **I** |  | **O** |  | **E** |  | **E** |  | **U** |  | **I** |  | **U** |  | **C** |  | **K** |  | **S** |
|  | **L** |  | **V** |  | **B** |  | **A** |  | **T** |  | **F** |  | **L** |  | **A** |  | **E** |  |

Ciphertext- **IOEEUIUCKSLVBATFLAE**

1. In Rail Fence Transposition, encrypt the following plaintext “ILOVEBEAUTIFULCAKES” using two level transpositions. The key is given as 524613.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 5 | 2 | 4 | 6 | 1 | 3 |
| I | L | O | V | E | B |
| E | A | U | T | I | F |
| F | U | L | C | A | K |
| E | S |  |  |  |  |

Ciphertext- **EIALAUSBFKOULIEFEVTC**

1. In Rail Fence Transposition, encrypt the following plaintext “ILOVEBEAUTIFULCAKES” using two level transpositions. The key is for the first transposition is given as 524613, while the key for the second transposition is given as 415362.

First Transposition-

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 5 | 2 | 4 | 6 | 1 | 3 |
| I | L | O | V | E | B |
| E | A | U | T | I | F |
| F | U | L | C | A | K |
| E | S |  |  |  |  |

Ciphertext- **EIALAUSBFKOULIEFEVTC**

Second Transposition-

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 4 | 1 | 5 | 3 | 6 | 2  |
| I | L | O | V | E | B |
| E | A | U | T | I | F |
| F | U | L | C | A | K |
| E | S |  |  |  |  |

Ciphertext- **LAUSBFKVTCIEFEOULEIA**

1. Using the rail fencing technique decrypt the following plaintext : “CNODCPETICDAYUEIHRHSOE”

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **C** |  |  **N** |  | **O** |  | **D** |  | **C** |  | **P** |  | **E** |  | **T** |  | **I** |  | **C** |  | **D** |  |
|  | **A** |  | **Y** |  |  **U** |  | **E** |  | **I** |  | **H** |  | **R** |  | **H** |  | **S** |  | **O** |  | **E** |

Plaintext- **CANYOUDECIPHERTHISCODE**

1. Decipher the following using two level transposition: Cipher: NSCYAUOPTTWLTMDNAOIEPAXTTOKZ Key: 4312567`

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 4 | 3 | 1 | 2 | 5 | 6 | 7 |
| T | T | N | A | A | P | T |
| M | T | S | U | O | A | O |
| D | W | C | O | I | X | K |
| N | L | Y | P | E | T | Z |

Plaintext- **TTNAAPTMTSUOAODWCOIXKNLYPETZ**