Name: Priyanka, student-id: 20179 CS572-blockchain development(week2-HW2)

A. Encrypt the plaintetxt ("coronavirus pandemic") to create ciphertext
    1. Encrypt the message using Caesar Cipher with key=3
    2. Encrypte the previous result using Transposition Cipher with the key="covid"
B. Decrypt the ciphertext to create plaintext
    1. Decrypt the ciphertext using Transposition Cipher with the key="covid"
    2. Decrypt the previous result using Caesar Cipher with key=3

Solution:A)

1.

- Plaintext: "coronavirus pandemic".
- Key=3

			a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z
a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z	a	b	c

C=f, o=r, r=u, o=r, n=q, a=d, v=y, i=l, r=u, u=x, s=v,

p=s, a=d, n=q, d=g, e=h, m=p, i=l, c=f

- ciphertext= frurqdyluxv sdqghplf

2.Encrypte the previous result using Transposition Cipher with the key="covid"

ciphertext= frurqdyluxv sdqghplf

Key=covid,

c	o	v	i	d
1	3	5	4	2
f	r	u	r	q
d	y	l	u	x
v	s	d	q	g
h	p	l	f	a

The ciphertext is read out by columns, starting with the column whose key letter is the lowest.
The column under **C** is read 1st, under **D** is the 2nd, under **O** is the third, under **I** is the 4th, under **V** is the 5th, etc.

Fdvh rysp uldl ruqf qxga

Solution: B)

1.Decrypt the ciphertext using Transposition Cipher with the key="covid"

- The ciphertext will be divided into 4 Rows

Number of rows= length of ciphertext/ length of the key.

Number of rows= 20/ 5= 4

So, number of rows=4

The first 4 characters of the ciphertext FDVH will put in the column that represents the character C of the key covid ,

C O V I D

C	O	V	I	D
1	3	5	4	2
f				
d				
v				
h				

The second 4 characters of the ciphertext qxga will be put into the column that represents the character D of the key COVID.

C O V I D

C	O	V	I	D
1	3	5	4	2
f				q
d				x
v				g
h				a

The third 4 characters of ciphertext ruqf will put into the column that represents the character I of the key COVID

C O V I D

C	O	V	I	D
1	3	5	4	2
f			r	q
d			u	x
v			q	g
h			f	a

The fourth 4 character of ciphertext rysp will be put into the column that represents the character O of the key COVID

C O V I D

C	O	V	I	D
1	3	5	4	2
f	r		r	q
d	y		u	x
v	s		q	g
h	p		f	a

The five 4 character of the ciphertext uldl will put into the column that represents the character V of the key COVID

COVID

C	O	V	I	D
1	3	5	4	2
f	r	u	r	q
d	y	l	u	x
v	s	d	q	g
h	p	l	f	a

So, after decryption the ciphertext is frurqdyluxvsdqghplfa

2.Decrypt the previous result using Caesar Cipher with key=3

Key=3

text= frurqdyluxvsdqghplfa
now we have decrypt plaintext is: " Coronavirus pandemic".
With Key=3

			a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z
a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z	a	b	c