**22)**pt=str(input(“ENTER THE PLAIN TEXT : “))

Cipher=””

Letter=”abcdefghijklmnopqrstuvwxyz”

Common=max(set(pt),key=pt.count)

Print(“COMMON LETTER : “+common)

If common in letter:

Com=letter.find(common)

Key=com-6

#print(“key = “+common+” – g = “+key)

If (key<0):

Key=26-key

For I in pt:

If I in letter:

Pos=letter.find(i)

New\_pos=(pos+key)%26

New\_char=letter[new\_pos]

Cipher+=new\_char

Print(“CIPHER TEXT : “+cipher)

23)import numpy as np

Def hill\_cipher(message, key):

Msg\_num = [ord(char) – 65 for char in message.upper()]

Msg\_len = len(msg\_num)

While msg\_len % len(key) != 0:

Msg\_num.append(23)

Msg\_len += 1

Msg\_mat = np.reshape(msg\_num, (-1, len(key)))

Enc\_mat = np.matmul(msg\_mat, key) % 26

Enc\_num = np.reshape(enc\_mat, (-1,)).tolist()

Ciphertext = ‘’.join([chr(num + 65) for num in enc\_num])

Return ciphertext