Q.No.16 Write a high level code for DES algorithm for decryption, the 16 keys (K1, K2,... K16) are used in reverse order. Design a key-generation scheme with the appropriate shift schedule for the decryption process

**CODE :**

**def printString(S, N):**

**plaintext = [None] \* 5**

**freq = [0] \* 26**

**freqSorted = [None] \* 26**

**used = [0] \* 26**

**for i in range(N):**

**if S[i] != ' ':**

**freq[ord(S[i]) - 65] += 1**

**for i in range(26):**

**freqSorted[i] = freq[i]**

**T = "ETAOINSHRDLCUMWFGYPBVKJXQZ"**

**freqSorted.sort(reverse = True)**

**for i in range(5):**

**ch = -1**

**for j in range(26):**

**if freqSorted[i] == freq[j] and used[j] == 0:**

**used[j] = 1**

**ch = j**

**break**

**if ch == -1:**

**break**

**x = ord(T[i]) - 65**

**x = x - ch**

**curr = ""**

**for k in range(N):**

**if S[k] == ' ':**

**curr += " "**

**continue**

**y = ord(S[k]) - 65**

**y += x**

**if y < 0:**

**y += 26**

**if y > 25:**

**y -= 26**

**curr += chr(y + 65)**

**plaintext[i] = curr**

**for i in range(5):**

**print(plaintext[i])**

**S = "B TJNQMF NFTTBHF"**

**N = len(S)**

**printString(S, N)**

**OUTPUT :**

