S042

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# ISP ASSIGNMENT

Q.1] $n = 7 \quad a = 5$

Private key Of Alice = 4

Private Key Of Bob = 6

Public key Of Alice :
$5^4 \bmod 17$
$= 13$

Public Key Of Bob :
$5^6 \bmod 17$
$= 2$

Secret key obtained by Alice :
$= 2^4 \bmod 17$
$= 16$

Secret Key obtained by Bob :
$= 13^6 \bmod 17$
$= 16$

Do both obtain the same value of secret key = 16

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Vigenere

Q] Encryption & Decryption of Cipher :-

Encryption :- To generate key :-

```
def encrypt_CipherText(String, key):
    key = list(key)
    if len(String) == len(key):
        return(key)
    else:
        for i in range(len(String - len(Key)):
            key.append(key[i % len(Key)])
    return("".join(key)
```

For Encryption :-

```
def encrypt_Ciphertext(String, key):
    Cipher_text = []
    for i in range(len(String)):
        x = ((ord(String[i]) + ord(key[i])) % 26 + ord('A')
    Cipher_text.append(chr(x))
    return("".join(Cipher_text))
```

For decryption :-

```
def decrypt_ciphertext(Cipher_text, Key):
    Origtext = []
    for i in range(len(String)):
        x = ((ord(cipher_text[i]) - ord(key[i])) % 26) + ord('A')
        Origtext.append(chr(x))
    return("".join(origtext))
```