Q1. $n = 17$

$a = 5$

kp Alice $= 4$

kp Bob $= 6$

∴ Public key (Alice) $= 5^4 \bmod 17$

$= 13$

Public key (Bob) $= 5^6 \bmod 17$

$= 2$

∴ secret key alice $= 2^4 \bmod 17$

$= 16$

secret key bob $= 13^6 \bmod 7$

$= 16$

Q2.
```
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))

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

```
def decrypt_orgtext(ciphes-text, key):
    org_text = []
for i in range(len(ciphes_text)):
    x = ((ord(ciphes-text[i] - ord(key[i]))%26) +
        ord('A')
org_text.append(chr(x))
return("".join(org_text)
```