Q1) To understand the security problem, three aspects must be considered, Describe these aspects?

ANSWER☹**16-points**

- **Security Attack**: Any action that compromises the security of information owned by an organization.

- **Security Service**: A service that enhances the security of the data processing system and the information transfer of an organization. The services are intended to counter security attacks and they make use of one or more security mechanisms to provide the service.

- **Security Mechanism**: A measure that is designed to detect, prevent or recover a security attack.

Q2) Write appropriate Security Term for the following MCQ☹**24-points**

1. **One of Goals Of secure computing is:**
   Confidentiality
   Interruption
   Modification
   None of the above

2. **One of the following is threats to security in computing:**
   Confidentiality
   Interruption
   Integrity
   None of the above

3. **Integrity:**
   Viewing, printing
   Separation and protection of the resources
   Access to computing resources without difficulties.
   None of the above

4. **Cipher text is:**
   A system of encryption and decryption
   The encrypted form.
   Hidden writing.
   Deciphering.

5. **Substitution ciphers.**
   The order of plaintext letters is rearranged during encryption.
   Plaintext messages are replaced with other letters during the decryption.
   Plaintext messages are replaced with other letters during the encryption.
   None of the above.

6. **Modification affects on:**
   Availability
   Integrity
   Authenticity
   None of the above

7. **Rail Fence Technique is an example of**
   a) Substitution
   b) Transposition
   c) Product cipher
   d) Caesar cipher

8. **Vigenère cipher is an example of**
   a) Transposition cipher
   b) Monoalphabetic cipher
   c) Polyalphabetic cipher
   d) Matrix Interception cipher

Q3) Encrypt First name of full name + Token "UOM" using Bit Manipulation with the following facts:

30-points

1) **Key="IRAQ".**
2) **S/R AGREE THAT Logical Gate is XOR.**
3) **S/R AGREE THAT Coding alphabet as in the following FOR CAPITAL LETTERS (A..Z):**

A	B	C	D	E	F	G	H	I
01000001	01000010	01000011	01000100	01000101	01000110	01000111	01001000	01001001
J	K	L	M	N	O	P	Q	R
01001010	01001011	01001100	01001101	01001110	01001111	01010000	01010001	01010010
S	T	U	V	W	X	Y	Z	
01010011	01010100	01010101	01010110	01010111	01011000	01011001	01011010	

BMNUOM

IRA QIR

B=01000010

I= 01001001

=0000101 10101010 01010101 01000011 01010000 1

Q4) Decrypt the cipher text "h$e-cetO$eveC9nag$1i$ohDcettlaW$$VV" using Matrix Transposition with **KEY="UOM1963"** (30-points)

ANSWER:

Grid

```
u   o   m   1   9   6   3
7   6   5   1   4   3   2
W   e   $   h   a   v   e
$   t   o   $   g   e   t
$   t   h   e   $   C   O
V   I   D   -   1   9   $
V   a   c   c   i   n   e
```

Therefore, the plain text is:

We have to get the COVID-19 Vaccine