

Faculty of Engineering
Quiz Exam 1

Module Title : Cryptography
Module Code : ECE5432/ECE5632
Semester : Spring 2024

Answer the following questions:

Question 1:

(Total Marks 6)

Calculate the following:

- a) $1682 \times 1312 \bmod 9$
- b) $3 \times 2/9 \bmod 7$
- c) $19^{21} \bmod 13$
- d) $(11+7) \bmod 4$
- e) Compute $13^{-1} \bmod 26$ if possible. If not, explain why
- f) Compute x that satisfies: $19 \cdot X = 4 \bmod 141$

Question 2:

(Total Marks 4)

Decrypt the ciphertext “FKMFIO”, using Hill cipher for given key :

$$K = \begin{bmatrix} 2 & 3 \\ 3 & 6 \end{bmatrix}$$

Question 3:

(Total Marks 4)

Encrypt the plaintext: “its cool”, using the key $(a,b) = (5,8)$, using Affine cipher.

Question 4:

(Total Marks 1)

What is the total number of rotated bits in DES ?

A	B	C	D	E	F	G	H	I	J	K	L	M
0	1	2	3	4	5	6	7	8	9	10	11	12
N	O	P	Q	R	S	T	U	V	W	X	Y	Z
13	14	15	16	17	18	19	20	21	22	23	24	25