Name: Karl Kinji S. Landicho **Section:** BSIT 3A

LectureQuiz#5

Requirement:

Encrypt: MRS TRUMP IF YOU PERMIT NOW I LIKE DATING KIMBERLY

GIVEN 3 X 3 key MATRIX MOD 26:

M	R	S	T	R	U	M	P	I	F
12	17	18	19	17	20	12	15	8	5

Y	O	U	P	E	R	M	I	T
24	14	20	15	4	17	12	8	19

N	O	W	I	L	I	K	E
13	14	22	8	11	8	10	4

D	A	T	I	N	G
3	0	19	8	13	6

K	I	M	B	E	R	L	Y	X
10	8	12	1	4	17	11	24	23

Key = 3 x 3 matrix

PT = **MRS TRU MPI FYO UPE RMI TNO WIL IKE DAT ING KIM BER LYX**

Formula:

$(C_1, C_2, C_3) = (P_1, P_2, P_3)$ $\begin{pmatrix} K11 & K12 & K13 \\ K21 & K22 & K23 \\ K31 & K32 & K33 \end{pmatrix}$ $\begin{pmatrix} 17 & 17 & 5 \\ 21 & 18 & 21 \\ 2 & 2 & 19 \end{pmatrix}$

$C_1 = (P_1K_{11} + P_2K_{21} + P_3K_{31}) \bmod 26$

$C_2 = (P_1K_{12} + P_2K_{22} + P_3K_{32}) \bmod 26$

$C_3 = (P_1K_{13} + P_2K_{23} + P_3K_{33}) \bmod 26$

Solutions:

MRS

$(C_1, C_2, C_3) = (12\ 17\ 18)$

= (12x17+17x21+18x2 12x17+17x18+18x2 12x5+17x21+18x19) mod 26

= (597 546 759)

= (25 0 5)

= (Z A F)

TRU

$(C_1, C_2, C_3) = (19\ 17\ 20)$

= (19x17+17x21+20x2 19x17+17x18+20x2 19x5+17x21+20x19) mod 26

= (720 669 832)

= (18 19 0)

= (S T A)

MPI

$(C_1, C_2, C_3) = (12\ 15\ 8)$

= (12x17+15x21+8x2 12x17+15x18+8x2 12x5+15x21+8x19) mod 26

= (535 490 527)

= (15 22 7)

= (P W H)

FYO

$(C_1, C_2, C_3) = (5\ 24\ 14)$

= (5x17+24x21+14x2 5x17+21x18+14x2 5x5+24x21+14x19) mod 26

= (617 491 795)

= (19 23 15)

= (T X P)

UPE

$(C_1, C_2, C_3) = (20\ 15\ 4)$

= (20x17+5x21+4x2 20x17+15x18+4x2 20x5+15x21+4x19) mod 26

= (453 618 491)

= (11 20 23)

= (L U X)

RMI

$(C_1, C_2, C_3) = (17\ 12\ 8)$

= (17x17+12x21+8x2 17x17+12x18+8x2 17x5+12x21+8x19) mod 26

= (557 521 489)

= (11 1 21)

= (L B V)

TNO

$(C_1, C_2, C_3) = (19\ 13\ 14)$

= (19x17+13x21+14x2 19x17+13x18+14x2 19x5+13x21+14x19) mod 26

= (624 585 634)

= (0 13 10)

= (A N K)

WIL

$(C_1, C_2, C_3) = (22\ 8\ 11)$

= (22x17+8x21+11x2 22x17+8x18+11x2 22x5+8x21+11x19) mod 26

= (564 540 487)

= (18 20 19)

= (S U T)

IKE

$(C_1, C_2, C_3) = (8\ 10\ 4)$

= (8x17+10x21+4x2 8x17+10x18+4x2 8x5+10x21+4x19) mod 26

= (354 324 326)

= (16 12 14)

= (Q M O)

DAT

$(C_1, C_2, C_3) = (3\ 0\ 19)$

= (3x17+0x21+19x2 3x17+0x18+19x2 3x5+0x21+19x19) mod 26

= (89 89 376)

= (11 11 12)

= (L L M)

ING

$(C_1, C_2, C_3) = (8\ 13\ 6)$

= (8x17+13x21+6x2 8x17+13x18+6x2 8x5+13x21+6x19) mod 26

= (421 382 427)

= (5 18 11)

= (F S L)

KIM

$(C_1, C_2, C_3) = (3\ 0\ 19)$

= (3x17+0x21+19x2 3x17+0x18+19x2 3x5+0x21+19x19) mod 26

= (89 89 376)

= (11 11 12)

= (L L M)

BER

$(C_1, C_2, C_3) = (1\ 4\ 17)$

= (1x17+4x21+17x2 1x17+4x18+17x2 1x5+4x21+17x19) mod 26

= (135 123 412)

= (5 19 22)

= (F T W)

LYX

$(C_1, C_2, C_3) = (11\ 24\ 23)$

= (11x17+24x21+23x2 11x17+24x18+23x2 11x5+24x21+23x19) mod 26

= (737 665 996)

= (9 15 8)

= (J P I)

Plain Text: MRS TRUMP IF YOU PERMIT NOW I LIKE DATING KIMBERLY

Encrypted: **ZAF STA PWH TXP LUX LBV ANK SUT QMO LLM FSL LLM FTW JPI**