NT-15) $3^{1,000,000} \pmod 7$

$\gcd(3,7) = 1 \qquad \emptyset(7) = 6$

$1000\,000 \pmod 6 = 4$

$3^{1000000} \equiv 3^4 \pmod 7 = 81 \pmod 7 = 4$

SmC 1) V is the most common letter with 12 occurances.

E is the most common letter in English. The shift from E to V is 17.

I LEARNED THE FOLLOWING JOKE THE LAST TIME I WORKED A REAL JOB. WHAT DID THE FISH SAY WHEN HE HIT HIS HEAD? DAM

SmC 2) $C \equiv 7P + 11 \pmod{26}$

PT	Ecode	$7P + 11 \pmod{26}$	CT
T	19	$3 + 11 = 14$	O
R	17	$(15 + 11) \bmod 26 = 0$	A
A	0	$11 \bmod 26 = 11$	L
N	13	$13 + 11 = 24$	Y
S	18	$(22 + 11) \bmod 26 = 7$	H
F	5	$9 + 11 = 20$	U
E	4	$2 + 11 = 13$	N
R	17	0	A
F	5	20	U

U	20	21	V
N	13	24	Y
D	3	6	G
S	18	7	H

CT = OALYHUNAUVYGH

Sm(4) $\emptyset(38)(38) = \emptyset(2^2 \cdot 19)(38) = (2)(18)(38)$
$= 1368$