Timed question:

WHAT GOOD IS THE WARMTH OF SUMMER, WITHOUT THE COLD OF WINTER TO GIVE IT SWEETNESS.

KTHX JCCB PG XTD KHUVXT CR GMVVDU, KPXTCMX XTD ZCIB WHAT GOOD IS THE WARMTH OF SUMMER, WITHOUT THE COLD

CR KPOXDU XC JPED PX GKDDXODGG

OF WINTER TO GIVE IT SWEETNESS

	A	В	C	D	E	F	G	H	I	J	K	L	\mathbf{M}	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
Frequency		2	7	8	1		5	2	1	2	5		2		2	5		2		5	3	3		10		1
Replacement	Z	D	O	E	V	В	S	Ā	L	G	W	J	U	P	N	I	X	F	K	Н	R	M	Y	T	Q	C

1)

F	G	J	F	M	K	P	С	Н	D	V	P	T	Н	Z	M	T	U	С	F	M	X	Q	P	G	Z	С	Q	P	0	F	M	Y
I	F	W	I	N	Т	E	R	O	0	M	E	ឆ	С	A	N	S	P	R	I	N	G	В	E	F	A	R	В	E	Н	I	N	D

Here's how we get the answer. Since we are given that

 $I(8) \rightarrow F(5)$

 $F(5) \rightarrow G(6)$

From this we know:

$$(a \times 8 + b) \mod 26 = 5$$

 $(a \times 5 + b) \mod 26 = 6$

Looking at the formulas we see that it is easiest to subtract the second from the first.

$$(a \times 8 + b) \mod 26 = 5$$

 $-(a \times 5 + b) \mod 26 = 6$
 $a \times 3 \mod 26 = -1$
 $a \times 3 \mod 26 = 25$

Since $25 \div 3 = 8.\overline{3}$ we have to look for another value. $25 + 26 = 51.51 \div 3 = 17$ Now that we know that a = 17

Popping that back into any of the formulas (we pick the second one because it is the lowest multiplier)

$$(17 \times 5 + b) \mod 26 = 6$$

 $(85 + b) \mod 26 = 6$

We can then subtract 85 from both sides

$$(85 + b) \mod 26 - 85 = (6 - 85) \mod 26$$

 $b \mod 26 = -79 \mod 26$
 $b \mod 26 = 25 \mod 26$

And we see that b = 25. However, we only know a few of the letters in the cipher:

F	G	J	F	M	K	P	С	H	D	V	P	T	H	Z	M	T	U	C	F	M	X	Q	P	G	Z	С	Q	P	0	F	M	Y
I	F		I																Ι					F						Ι		

Our first step is to encode the common letters **ETAOIN** to see what they would map to. Note that we already know the mapping for E so we don't have to do that one.

Filling in the letters we found (PKZDFM) we get a bit more of the answer

F	G	J	F	M	K	P	С	H	D	V	P	T	H	Z	M	T	U	С	F	M	X	Q	P	G	Z	С	Q	P	0	F	M	Y
I	F	•	Ι	N	Т	Ħ			0		Ξ			A	N				Ι	N			Ħ	F	A			Ε		Ι	N	

This doesn't give us enough to solve it quickly do we just take the next 5 letters **SRHLD**.

We know the reverse mapping of 5 more letters (TCOEY) which we can fill in

			-	-		-		1	0	_		-		-	`			,	-													
F	G	J	F	M	K	P	С	Η	D	V	P	H	Н	Z	M	Ţ	U	Ω	Ŧ	M	X	ð	Р	G	Z	С	Q	P	0	F	M	Y
I	F		I	N	T	Ε	R		0		E	ន		A	N	S		R	I	N			E	F	A	R		E	Н	I	N	D

This gives us a pretty good idea, but a few more letters are worth converting.

11115 51 (05	4 2 2	nenj goda raca	, cara re	, 1110	ic receip .
C(2)	\rightarrow	2×17+25	59	\rightarrow	H(7)
TT (20)			36		B(1)
U(20)	\rightarrow	20×17+25	5	\rightarrow	
M (10)			22		V(21)
M(12)	\rightarrow	12×17+25	9	\rightarrow	
□ / E \			11		G(6)
F(5)	\rightarrow	5×17+25	0	\rightarrow	
D /1E)			28		U(20)
P(15)	\rightarrow	15×17+25	0	\rightarrow	

Filling in these 5 more letters (HBVGU) gives us:

F	G	J	F	M	K	P	С	H	D	V	P	T	Н	Z	M	T	U	С	F	M	X	Q	P	G	Z	С	Q	P	0	F	M	Y
I	F		I	N	T	E	R	С	0	M	E	S	С	A	N	S	P	R	Ι	N			E	F	A	R		E	H	I	N	D

We are pretty sure J is W, X is G and Q is B, but let's check them out to confirm.

101 1 / /	1				39	J	J(9)							
W(22	<i>→</i>	22×1	17+25		9 12	→	X(23)							
G(6)	\rightarrow	6×17	7+25		7	→	(23)							
B(1)	→	1×17	_			•	2(16)							
The ma	J F M				d fillir P T		n in gives				G Z	CQE	OF	му
I F	WIN			O M			N S P				_		HI	N D
		- -	1 - 1 - 1	<u> </u>							_		<u> </u>	
		-			•		t there w							
							CGVRR							
INTE			OFW		TER CDC		<mark>INALL</mark> JJKFF		EAR	NED	TH	ATTE	1Ľ	
	AS IN						SUMM ESUMM							
KEWE							L M N		O R	ST	UV	w x y	7	
Frequ		T 1	3	3 8		2 1	1 1					6 4 4		
Replac	cement	F G	I J K	MN	P Q	SU	VXY	ZC	O L	D W	E A	T H R	В	
3)	Failure	is the k	key to su	uccess			e teaches	us son	nething	ζ.		<u> </u>		
• • -						. – .	. – . –	• •				•		
AABA	B A	AAA	A A	BAAZ	Ą	ABA		AABB	E	BAAA	A	AABA	A	
F		A		I		Ι		U		R		E		
_														
• •			. – .			. – .		 DD		-	. –	7 7 D		
•	ABA		 BAA			. – . ABA T	AAB		AAE			AAB K		
	ABA		BAA			 ABA T	AAB H		AAE			AAB K		
		·		. - .		T 		. –		E . –		K		
		·		. - .		T 		. –		E . –		K BB		
	 AABA E	 A	BABB	S BA	 BAA T	T BA	H 	. – ·	BAAA	E – AB	 BAA U	K BB		
	I AABA E	 A	 BABB Y	S BA 	 BAA T	T BA	H ABBA O	. – ·	BAAA S	E AB	 BAA U	K BB		
	AABA E AAAE	 A BA	BABB Y AAAB	BA	 BAA T AAB	T BA	ABBA O BAAA S	. – · B	BAAA BAAA S BAAA S	E AB 	 BAA U AAB	K BB		
	AABA E AAAE C	 AA BA	BABB Y AAAB C	BA	 BAA T AAB E	T	ABBA O BAAA S	. – . B . – .	BAAA S BAAA BAAA S	E AB AB	 BAA U AAB E	BB AA		
	AABA E AAAE C		BABB Y AAAB C AAAB	3A BA BA	BAA T . AAB E	T	H ABBA O BAAA S ABAB	. – . B . – . B	BAAA S BAAA BAAA S 	E AB AB AB	BAA U AAB E BAA	K BB AA		
	AABA E AAAB C 		BABB Y AAAB C 	3A BA BA	BAA T . AAB E . AAB	T	H ABBA O BAAAA S ABAB M	. – B . – B	BAAA S BAAA BAAA S ABAA	E AB AB AB	BAA U AAB E BAA	BB AA AB		
	AABA E AAAB C AAAA A		BABB Y AAAB C AAAB	3A 3A 	BAA T AAB E AAB	T . –	ABBA O BAAA S ABAB M	. – · B . – · B	BAAA S BAAA S BAAA S ABAA	E AB AB AB	BAA U AAB E BAA S	BB AA AB		
	AABA E AAAAE C AAAAA A BAAAE		BABB Y AAAB C AAAB C AAAAB AAAAA	3A 3A 3A	BAA T . AAB ABA H ABA	T	H ABBA O BAAA S ABAB M AABA	· · · · · · · · · · · · · · · · · ·	BAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA	E AB AB AB AA AA	BAA U AAB E BAA S	AA AB		
	AABA E AAAA C AAAAA A BAAA T		BABB Y AAAB C AAAAB A	3A BA BA	BAA T . AAB E . AAB H ABA K	T	H ABBA O BAAAA S ABABA M	· · · · · · · · · · · · · · · · · ·	BAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA	E AB AB AB AA AA	BAAB E S AAB E	K BB AA AB		
	AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA		BABB Y AAAB C AAAB C AAAAA A	3A	BAA T AAB E AAB H ABA K	T BA BB AB	H ABBA O BAAA S ABAB M AABA	. — · B - — B - — A	BAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA	E	BAA U AAB E S AAB E	AA AB		

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	BAAAB S	BAAAB S	ABBAB O	ABABB M	AABAA E	BAABA T
. – .						
	AABBB	ABAAA	ABBAA	AABBA		
	H	I	N	G		

4) MIT VUS PEV NOB BGM

Here's how you get the answer (remember you add one Z at the end to make it a group of three letters).

$$\begin{pmatrix} Z & O & R \\ K & X & Y \\ Z & Z & Y \end{pmatrix} \begin{pmatrix} V \\ E \\ R \end{pmatrix} \equiv \begin{pmatrix} 25 & 14 & 17 \\ 10 & 23 & 24 \\ 25 & 25 & 24 \end{pmatrix} \begin{pmatrix} 21 \\ 4 \\ 17 \end{pmatrix} \equiv \begin{pmatrix} 25 \times 21 + 14 \times 4 + 17 \times 17 \\ 10 \times 21 + 23 \times 4 + 24 \times 17 \end{pmatrix} \equiv \begin{pmatrix} 870 \\ 710 \\ 1033 \end{pmatrix} \mod 26 \equiv \begin{pmatrix} 12 \\ 8 \\ 19 \end{pmatrix} \equiv \begin{pmatrix} M \\ I \\ T \end{pmatrix}$$

$$\begin{pmatrix} Z & O & R \\ K & X & Y \\ Z & Z & Y \end{pmatrix} \begin{pmatrix} Y \\ O \\ L \end{pmatrix} \equiv \begin{pmatrix} 25 & 14 & 17 \\ 10 & 23 & 24 \\ 25 & 25 & 24 \end{pmatrix} \begin{pmatrix} 24 \\ 14 \\ 11 \end{pmatrix} \equiv \begin{pmatrix} 25 \times 24 + 14 \times 14 + 17 \times 11 \\ 10 \times 24 + 23 \times 14 + 24 \times 11 \\ 25 \times 24 + 25 \times 14 + 24 \times 11 \end{pmatrix} \equiv \begin{pmatrix} 983 \\ 826 \\ 1214 \end{pmatrix} \mod 26 \equiv \begin{pmatrix} 21 \\ 20 \\ 18 \end{pmatrix} \equiv \begin{pmatrix} V \\ U \\ S \end{pmatrix}$$

$$\begin{pmatrix} Z & O & R \\ K & X & Y \\ Z & Z & Y \end{pmatrix} \begin{pmatrix} D \\ M \\ I \end{pmatrix} \equiv \begin{pmatrix} 25 & 14 & 17 \\ 10 & 23 & 24 \\ 25 & 25 & 24 \end{pmatrix} \begin{pmatrix} 3 \\ 12 \\ 8 \end{pmatrix} \equiv \begin{pmatrix} 25 \times 3 + 14 \times 12 + 17 \times 8 \\ 10 \times 3 + 23 \times 12 + 24 \times 8 \\ 25 \times 3 + 25 \times 12 + 24 \times 8 \end{pmatrix} \equiv \begin{pmatrix} 379 \\ 498 \\ 567 \end{pmatrix} \mod 26 \equiv \begin{pmatrix} 15 \\ 3 \\ 21 \end{pmatrix} \equiv \begin{pmatrix} P \\ E \\ V \end{pmatrix}$$

$$\begin{pmatrix} Z & O & R \\ K & X & Y \\ Z & Z & Y \end{pmatrix} \begin{pmatrix} T \\ G \\ A \end{pmatrix} \equiv \begin{pmatrix} 25 & 14 & 17 \\ 10 & 23 & 24 \\ 25 & 25 & 24 \end{pmatrix} \begin{pmatrix} 19 \\ 6 \\ 0 \end{pmatrix} \equiv \begin{pmatrix} 25 \times 19 + 14 \times 6 + 17 \times 0 \\ 10 \times 19 + 23 \times 6 + 24 \times 0 \\ 25 \times 19 + 25 \times 6 + 24 \times 0 \end{pmatrix} \equiv \begin{pmatrix} 559 \\ 328 \\ 625 \end{pmatrix} \mod 26 \equiv \begin{pmatrix} 13 \\ 16 \\ 1 \end{pmatrix} \equiv \begin{pmatrix} N \\ Q \\ B \end{pmatrix}$$

$$\begin{pmatrix} Z & O & R \\ K & X & Y \\ Z & Z & Y \end{pmatrix} \begin{pmatrix} M \\ E \\ Z \end{pmatrix} \equiv \begin{pmatrix} 25 & 14 & 17 \\ 10 & 23 & 24 \\ 25 & 25 & 24 \end{pmatrix} \begin{pmatrix} 12 \\ 4 \\ 25 \end{pmatrix} \equiv \begin{pmatrix} 25 \times 12 + 14 \times 4 + 17 \times 25 \\ 10 \times 12 + 23 \times 4 + 24 \times 25 \end{pmatrix} \equiv \begin{pmatrix} 781 \\ 812 \\ 1000 \end{pmatrix} \mod 26 \equiv \begin{pmatrix} 1 \\ 6 \\ 12 \end{pmatrix} \equiv \begin{pmatrix} B \\ G \\ M \end{pmatrix}$$

5) TEMO EL DIA EN QUE LA TECNOLOGÍA SOBREPASE NUESTRA HUMANIDAD. EL MUNDO SOLO TENDRA UNA GENERACION DE IDIOTAS.

(Translation;

I fear the day when technology surpasses our humanity. The world will only have a generation of idiots.)