C - Codebusters - Pearl City Invitational - 12-12-2020
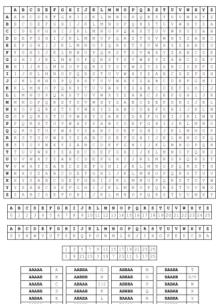
In case you forgot your reference sheets, here's some for you. It might require quite a bit of scrolling, though.

Frequency Table of English letters:

Frequency Table of Spanish letters:

For the purposes of cryptograms it is customary to treat n and ñ as distinct letters, but a and á are the same letter. Likewise for e and é, and i and í. In other words, all the accent marks get amputated when working with cryptograms. Also, while some older Spanish dictionaries consider ch, ll, and rr, to be their own letters—this has fallen out of modern usage. Accordingly, "burro" is considered as five letters: "b-u-r-r-o" and not as four letters "b-u-rr-o."

Morse Code:

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1. (450.00 pts) Solve this aristocrat. That is all. And, it's not timed, so no pressure.

[FREQUENCY]

Type your letters below the corresponding given letters. Your letters can be lower or upper case.

P O	I X L	F L Y I	F K K Q Y ,	A H L M I	S L O	I M G Q	I K	B Y ,	A P W L
I N	T H E	B E S T	B O O K S ,	G R E A T	M E N	T A L K	T O	U S ,	G I V E

B Y	I X L P H	S K Y I	E H L N P K B Y	I X K B A X I Y ,	M O J	E K B H
U S	T H E I R	M O S T	P R E C I O U S	T H O U G H T S ,	A N D	P O U R

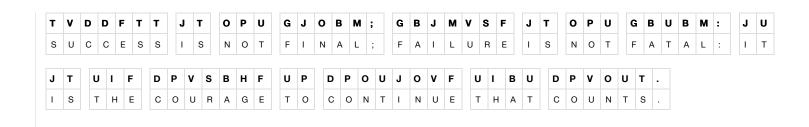| I X L P H	Y K B G Y	P O I K	K B H Y .
T H E I R	S O U L S	I N T O	O U R S .

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2. (200.00 pts) Decode the following aristocrat using the K1 Alphabet set which is a quote from Winston S. Churchill, a prime minister of the United Kingdom.

[FREQUENCY]

Type your letters below the corresponding given letters. Your letters can be lower or upper case.

T	V	D	D	F	T	T		J	T		O	P	U		G	J	O	B	M	;		G	B	J	M	V	S	F		J	T		O	P	U		G	B	U	B	M	:		J	U
S	U	C	C	E	S	S		I	S		N	O	T		F	I	N	A	L	;		F	A	I	L	U	R	E		I	S		N	O	T		F	A	T	A	L	:		I	T

J	T		U	I	F		D	P	V	S	B	H	F		U	P		D	P	O	U	J	O	V	F		U	I	B	U		D	P	V	O	U	T	.
I	S		T	H	E		C	O	U	R	A	G	E		T	O		C	O	N	T	I	N	U	E		T	H	A	T		C	O	U	N	T	S	.

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3. (150.00 pts) Using a decryption key of **BRUH**, decode the string **CAINPFYYORMKWSLY** using the Hill Cipher with a 26-character alphabet

Type your letters below the corresponding given letters. Your letters can be lower or upper case.

C	A	I	N	P	F	Y	Y	O	R	M	K	W	S	L	Y
I	S	T	H	E	T	E	S	T	P	O	G	G	E	R	S

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4. (125.00 pts) Encode the following motivational quote by KSI using an affine cipher with **a = 15 and b = 13**

Type your letters below the corresponding given letters. Your letters can be lower or upper case.

T	H	E		B	E	S	T		D	E	C	I	S	I	O	N		I		E	V	E	R		M	A	D	E		W	A	S		T	O		D	R	O	P		O	U	T
M	O	V		C	V	X	M		G	V	R	D	X	D	P	A		D		V	Q	V	I		L	N	G	V		F	N	X		M	P		G	I	P	E		P	B	M

O	F		S	C	H	O	O	L	.
P	K		X	R	O	P	P	W	.

---

5. (200.00 pts)
Decode the following aristocrat using the K2 alphabet type which is a quote from Gurbaksh Chahal, Indian-American entrepreneur who founded several ad companies.

[FREQUENCY]

Type your letters below the corresponding given letters. Your letters can be lower or upper case.

H	E		X	N	T		F	D	M	T	H	M	D	K	X		V	Z	M	S		R	N	L	D	S	G	H	M	F	,		C	N	M	'	S		V	Z	H	S
I	F		Y	O	U		G	E	N	U	I	N	E	L	Y		W	A	N	T		S	O	M	E	T	H	I	N	G	,		D	O	N	'	T		W	A	I	T

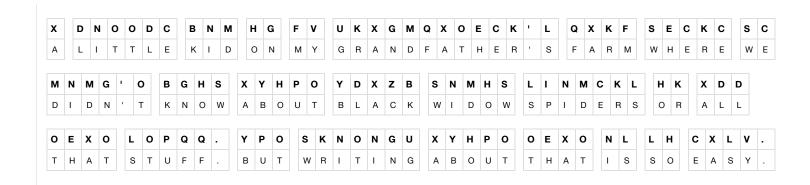| E | N | Q | | H | S | | - | - | | S | D | Z | B | G | | X | N | T | Q | R | D | K | E | | S | N | | A | D | | H | L | O | Z | S | H | D | M | S | . |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| F | O | R | | I | T | | - | - | | T | E | A | C | H | | Y | O | U | R | S | E | L | F | | T | O | | B | E | | I | M | P | A | T | I | E | N | T | . |

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6. (400.00 pts)
The following symbols encodes a phrase by Albert Einstein using a Baconian Cipher. What does it say?

ABABA ABBAB ABBAB ABAAB AAABB AABAA AABAA ABBBA ABAAA ABBAA BAABA ABBAB ABBAA AAAAA BAABA BAABB BAAAA AABAA AAAAA ABBAA AAABB BAABA AABBB AABAA ABBAA BABBA ABBAB BAABB BABAA ABAAA ABABA ABABA BAABB ABBAA AAABB AABAA BAAAA BAAAB BAABA AAAAA ABBAA AAABB AABAA BAABB AABAA BAAAA BABBA BAABA AABBB ABAAA ABBAA AABBA AAAAB AABAA BAABA BAABA AABAA BAAAA

Please type the decrypted message below.

Expected Answer: LOOK DEEP INTO NATURE, AND THEN YOU WILL UNDERSTAND EVERYTHING BETTER.

7. (600.00 pts) This patristocrat by Seto Kaiba has "products" somewhere in it.

[FREQUENCY]

Type your letters below the corresponding given letters. Your letters can be lower or upper case.

D M P G I	F Y A B K	T J Y A I	J Y R I M	Z V R G M	C G A J J	P K J A J
G A M E S	P U R I F	Y O U R S	O U L S A	N D L E A	V E R O O	M F O R O

Y A Z G U	V G C G R	J F P G Z	L L S M L	N S M R R	G Z D G I	L S G P B
U R N E W	D E V E L	O P M E N	T T H A T	C H A L L	E N G E S	T H E M I

Z V L S G	T M A G L	S G F A J	V Y N L I	J K S Y P	M Z I U B	I V J P
N D T H E	Y A R E T	H E P R O	D U C T S	O F H U M	A N S W I	S D O M

8. (325.00 pts) This aristocrat by David Attenborough contains the word "such".

[FREQUENCY]

Type your letters below the corresponding given letters. Your letters can be lower or upper case.

D ' F	I Y V Z Z D Z X	E K T Z W	S G A	Y K E J W	J K K B D Z X	V S	S G A
I ' M	S W A N N I N G	R O U N D	T H E	W O R L D	L O O K I N G	A T	T H E

F K I S	U V Q T J K T I J L	D Z S A E A I S D Z X	S G D Z X I .	I T O G	X K K W
M O S T	F A B U L O U S L Y	I N T E R E S T I N G	T H I N G S .	S U C H	G O O D

U K E S T Z A .
F O R T U N E .

9. (150.00 pts) Encode the following quote from famous basketball player Kyrie Irving using a Vigenère Cipher with the key **FLAT**

Type your letters below the corresponding given letters. Your letters can be lower or upper case.

Y O U	W A N T	T O	K E E P	T H E	D E F E N S E	G U E S S I N G .
D Z U	P F Y T	M T	V E X U	E H X	I P F X S D E	Z Z P S L N Y G .

10. (400.00 pts) Decode this K2-encoded aristocrat that is a quote by Kary Mullis.

[FREQUENCY]

Type your letters below the corresponding given letters. Your letters can be lower or upper case.

N ' R C	Y C C G	S K N O N G U	X Y H P O	F V	Y H V E H H M ,	S E C G	N	S X L
I ' V E	B E E N	W R I T I N G	A B O U T	M Y	B O Y H O O D ,	W H E N	I	W A S

X	D N O O D C	B N M	H G	F V	U K X G M Q X O E C K ' L	Q X K F	S E C K C	S C
A	L I T T L E	K I D	O N	M Y	G R A N D F A T H E R ' S	F A R M	W H E R E	W E

M N M G ' O	B G H S	X Y H P O	Y D X Z B	S N M H S	L I N M C K L	H K	X D D
D I D N ' T	K N O W	A B O U T	B L A C K	W I D O W	S P I D E R S	O R	A L L

O E X O	L O P Q Q .	Y P O	S K N O N G U	X Y H P O	O E X O	N L	L H	C X L V .
T H A T	S T U F F .	B U T	W R I T I N G	A B O U T	T H A T	I S	S O	E A S Y .

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11. (675.00 pts) Oh no! Did I drop my quote by Frederick Sanger into my Spanish translator again? How does this keep happening. Oh well, you can solve it anyway.

[FREQUENCY]

Type your letters below the corresponding given letters. Your letters can be lower or upper case.

D M	X K E K	N W	Y O S C D	T D	T D M X N J H O E O D W P K	S	P O D H H S M
E S	C O M O	U N	V I A J E	D E	D E S C U B R I M I E N T O	A	T I E R R A S

T D M X K W K X O T S M ,	W K	J N M X S W T K	W N D Y K M	P D H H O P K H O K M
D E S C O N O C I D A S ,	N O	B U S C A N D O	N U E V O S	T E R R I T O R I O S

M O W K	W N D Y K M	X K W K X O E O D W P K M .
S I N O	N U E V O S	C O N O C I M I E N T O S .

---

12. (175.00 pts) Decode the following rapper quote by Polo G using an affine cipher with **a = 21 and b = 7**

Type your letters below the corresponding given letters. Your letters can be lower or upper case.

Z L V T X	T V	V P	T Z K P A Q H U Q .	C N X H L V N	T U	X Y T X H D P	T Q ' V
M U S I C	I S	S O	I M P O R T A N T .	B E C A U S E	I N	C H I C A G O	I T ' S

L K	Q P	L V	Q P	Q N E E	Q Y N	V Q P A T N V	U P C P S R	N E V N	B T E E .
U P	T O	U S	T O	T E L L	T H E	S T O R I E S	N O B O D Y	E L S E	W I L L .

---

13. (275.00 pts) Solve the following Pollux cipher. 1,3=O, 4,5=−, 2,6=X.

867007609383232633617726579558927734914204072304636913

651227595324058956170190125365539230564325970614109201

9499716707291353673651613633327031636807

Expected Answer: there is no value in anything until it is finished

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14. (375.00 pts) Decode the following aristocrat which is a quote from Satya Nadella, the CEO of Microsoft.

[FREQUENCY]

Type your letters below the corresponding given letters. Your letters can be lower or upper case.

I T Q F Q	X U	U Y J Q I T X V D	Y V Z C	G	S Q Y	A V X K A Q Z C	S G V	E Y ,
T H E R E	I S	S O M E T H I N G	O N L Y	A	C E O	U N I Q U E L Y	C A N	D O ,

L T X S T	X U	U Q I	I T G I	I Y V Q ,	L T X S T	S G V	I T Q V	S G M I A F Q
W H I C H	I S	S E T	T H A T	T O N E ,	W H I C H	C A N	T H E N	C A P T U R E

I T Q	U Y A Z	Y H	I T Q	S Y Z Z Q S I X P Q .
T H E	S O U L	O F	T H E	C O L L E C T I V E .

15. (500.00 pts) Decipher this patristocrat by a renowned sociologist. It has been encoded with a K1 alphabet with the keyword BOUNTIFUL.

[FREQUENCY]

Type your letters below the corresponding given letters. Your letters can be lower or upper case.

X P K Q P	K K I L H	S Q I X S	P L L P Q	U S R L I	U M T U S	A P M X B
M A N C A	N N O T B	E C O M E	A T T A C	H E D T O	H I G H E	R A I M S

P K R B J	H X M L L	I P A J O	S M N U S	B S S B K	I L U M K	T P H I C
A N D S U	B M I T T	O A R U L	E I F H E	S E E S N	O T H I N	G A B O V

S U M X L	I D U M Q	U U S H S	O I K T B	L I N A S	S U M X N	A I X P O
E H I M T	O W H I C	H H E B E	L O N G S	T O F R E	E H I M F	R O M A L

O B I Q M	P O Y A S	B B J A S	M B L I P	H P K R I	K U M X L	I U M X B
L S O C I	A L P R E	S S U R E	I S T O A	B A N D O	N H I M T	O H I M S

S O N P K	R R S X I	A P O M G	S U M X
E L F A N	D D E M O	R A L I Z	E H I M

16. (200.00 pts) Decode this quote from the famous rapper Juice Wrld that has been encoded using a Vigenère cipher with a keyword of **LAROI**

Type your letters below the corresponding given letters. Your letters can be lower or upper case.

T	F V S T	W I B S	Q	T N J D Q C E	D C Z P	P V C X W E	K V I Y	I	K V Q Y K
I	F E E L	L I K E	I	I N S P I R E	M O R E	P E O P L E	T H A N	I	T H I N K

Z R W .	T	J L G B	Y E V R	B Z	R V A M X B V F	B S A K .

Z	R W .	T	J L G B	Y E V R	B Z	R V A M X B V F	B S A K .
I	D O .	I	J U S T	N E E D	T O	R E M E M B E R	T H A T .

---

17. (325.00 pts) The tennis star Federer has an aristocrat for you to decrypt.

[FREQUENCY]

Type your letters below the corresponding given letters. Your letters can be lower or upper case.

R J D	K H V	O Q	I N D O O J M V	H V B	I D K K Q I I P D Y	J M	R J D	K H V
Y O U	C A N	B E	S T U B B O R N	A N D	S U C C E S S F U L	O R	Y O U	C A N

Z C W Q	C N	D S	H	O C N	H V B	K A H V Z Q	N A C V Z I	H M J D V B .	P J M
G I V E	I T	U P	A	B I T	A N D	C H A N G E	T H I N G S	A R O U N D .	F O R

G Q ,	C N ' I	C G S J M N H V N	N J	A H W Q	H	O C N	J P	O J N A .
M E ,	I T ' S	I M P O R T A N T	T O	H A V E	A	B I T	O F	B O T H .

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18. (125.00 pts) Using a key of **WRLD,** encode the string **LEGENDNEVERDIE** using the Hill Cipher with a 26-character alphabet

$$\begin{pmatrix} W & R \\ L & D \end{pmatrix} \equiv \begin{pmatrix} 22 & 17 \\ 11 & 3 \end{pmatrix}$$

Type your letters below the corresponding given letters. Your letters can be lower or upper case.

L	E	G	E	N	D	N	E	V	E	R	D	I	E
Y	D	S	A	Z	W	Q	Z	K	J	J	O	K	W

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19. (375.00 pts) Solve this aristocrat by the man who toppled the Aztec Empire, Hernan Cortes.

[FREQUENCY]

Type your letters below the corresponding given letters. Your letters can be lower or upper case.

I V D	T N C N J D	T L N J F	K V N A V	R P N M T G	P U	L D G N I Z J A D
T H E	D I V I N E	D R I N K	W H I C H	B U I L D S	U P	R E S I S T A N C E

Z J T	B N S V I G	B Z I N S P D .	Z	A P U	Y B	I V N G	U L D A N Y P G
A N D	F I G H T S	F A T I G U E .	A	S I P	O F	T H I S	P R E C I O U S

T L N J F	U D L W N I G	Z	W Z J	I Y	K Z M F	B Y L	Z	K V Y M D	T Z O
D R I N K	P E R M I T S	A	M A N	T O	W A L K	F O R	A	W H O L E	D A Y

K N I V Y P I	B Y Y T .
W I T H O U T	F O O D .

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20. (400.00 pts)

The following symbols encodes a phrase by Jonathan Lyndale Kirk using a Baconian Cipher. What does it say?

ABAAA ABABB BAAAA AABAA AAAAA ABABA ABABA BABBA BAABA AABBB AABAA AAAAB AAAAA AAAAB BABBA BAAAB AABBB AABAA ABAAB ABBAA ABBAB BABAA BAABA AABBB AAAAA BAABA AABBB AABAA BAAAA BABBA ABBAB BAABB ABBAA AABBA AABAA BAAAB BAABA BAAAB ABBAB ABBAA BABAA AAAAA BAAAB AAAAA ABABA BABAA AAAAA BABBA BAAAB AABBA BAABB AAAAA BAAAA AAAAA ABBAA BAABA AABAA AABAA AAABB BAABA ABBAB AABBA AABAA BAABA BAABA AABBB AABAA ABABB ABBAB ABBAA AABAA BABBA

Please type the decrypted message below.

Expected Answer: I'M REALLY THE BABY, SHE KNOW THAT HER YOUNGEST SON WAS ALWAYS GUARANTEED TO GET THE MONEY

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21. (550.00 pts) Here's a patristocrat from a song, from a movie, from the legendary High School Musical trilogy (luckily, it's not Humuhumunukunukuapua'a).

[FREQUENCY]

Type your letters below the corresponding given letters. Your letters can be lower or upper case.

B S H N G	F F U T X	S N U S G	E K C S M	G S E N H	N Q D T L	S N U G H
W E S T I	L L H A V	E T H E I	N G R E D	I E N T S	T O M A K	E T H I S

H R D D S	C H B S S	N B S F F	G K Q N C	T K H G E	H N S T M	Q W C G J
S U M M E	R S W E E	T W E L L	I G O T R	A G S I N	S T E A D	O F R I C

U S H T E	M T F F N	U S H S M	G C N A M	G H U S H	O R H N B	G H U G U
H E S A N	D A L L T	H E S E D	I R T Y D	I S H E S	J U S T W	I S H I H

T M N U C	S S B G H	U S H
A D T H R	E E W I S	H E S

---

22. (400.00 pts) Decode the following aristocrat which is a quote from Chuck Yeager, the first person the break the sound barrier in level flight.

[FREQUENCY]

Type your letters below the corresponding given letters. Your letters can be lower or upper case.

R	O N F	N B O N L F	N W M N R G	U W	G L R J D .	N B O N L F .	R Z	O N F	V L
I	W A S	A L W A Y S	A F R A I D	O F	D Y I N G .	A L W A Y S .	I T	W A S	M Y

W X N M	Z Q N Z	V N G X	V X	B X N M J	X I X M L Z Q R J D	R	E U K B G
F E A R	T H A T	M A D E	M E	L E A R N	E V E R Y T H I N G	I	C O U L D

N C U K Z	V L	N R M S B N J X	N J G	V L	X V X M D X J E L	X A K R S V X J Z ,
A B O U T	M Y	A I R P L A N E	A N D	M Y	E M E R G E N C Y	E Q U I P M E N T ,

N J G	Y X S Z	V X	W B L R J D	M X F S X E Z W K B	U W	V L	V N E Q R J X
A N D	K E P T	M E	F L Y I N G	R E S P E C T F U L	O F	M Y	M A C H I N E

N J G	N B O N L F	N B X M Z	R J	Z Q X	E U E Y S R Z .

N	J	G		N	B	O	N	L	F		N	B	X	M	Z		R	J		Z	Q	X		E	U	E	Y	S	R	Z	.
A	N	D		A	L	W	A	Y	S		A	L	E	R	T		I	N		T	H	E		C	O	C	K	P	I	T	.

Congratulations on surviving the test! Take a minute to rest, maybe eat a bag of chips or drink some soda; you deserve it.