

# Science Olympiad — CUSO 2025

Names of participants: (Please print neatly)

School Name: \_\_\_\_\_

Team Number: **C** \_\_\_\_\_

Check your team: ☐ Varsity ☐ JV1 ☐ JV2 ☐ JV3

**Warning:** Do not open this packet until given permission to do so.

**Note:** There are useful notes after this page.

**Scoring:** Time to solve first problem: \_\_\_\_\_ (use to calculate Bonus below)

Question	Value	Incorrect letters	Deduction	Score
Timed	153			
1	310			
2	348			
3★	263			★
4	276			
5	217			
6	389			
7	243			
8	302			
9★	189			★
10	250			
11	402			
12	511			
13	361			
14	346			
15	277			
16★	351			★
17	231			
18	251			
19	274			
20	341			
21	341			
22	413			
23	222			
24	291			
25	175			
26	268			
27	211			
28	498			
29	284			
30	265			
Bonuses	Timed:	Special Bonus: ★ = 150; ★★ = 400; ★★★ = 750		
Final Score				



The following tables might be useful during the event.

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

AAAAA	A	ABBAA	N
AAAAB	B	ABBAB	O
AAABA	C	ABBBA	P
AAABB	D	ABBBB	Q
AABAA	E	BAAAA	R
AABAB	F	BAAAB	S
AABBA	G	BAABA	T
AABBB	H	BAABB	U/V
ABAAA	I/J	BABAA	W
ABAAB	K	BABAB	X
ABABA	L	BABBA	Y
ABABB	M	BABBB	Z

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

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

1	3	5	7	9	11	15	17	19	21	23	25
1	9	21	15	3	19	7	23	11	5	17	25

# Frequency Table of English letters:

E - 12.51%	S - 6.54%	C - 3.06%	G - 1.96%	K - 0.67%
T - 9.25%	R - 6.12%	U - 2.71%	W - 1.92%	X - 0.19%
A - 8.04%	H - 5.49%	M - 2.53%	Y - 1.73%	J - 0.16%
O - 7.60%	L - 4.14%	F - 2.30%	B - 1.54%	Q - 0.11%
I - 7.26%	D - 3.99%	P - 2.00%	V - 0.99%	Z - 0.09%
N - 7.09%				

# Frequency Table of Spanish letters:

E - 14.08%	I - 5.98%	M - 3.08%	Y - 1.09%	Z - 0.47%
A - 12.16%	L - 5.24%	P - 2.89%	V - 1.05%	Ñ - 0.17%
O - 9.20%	D - 4.67%	B - 1.49%	G - 1.00%	X - 0.14%
S - 7.20%	T - 4.60%	H - 1.18%	F - 0.69%	K - 0.11%
N - 6.83%	U - 4.69%	Q - 1.11%	J - 0.52%	W - 0.04%
R - 6.41%	C - 3.87%			

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:

A	•-
B	-•••
C	-•-•
D	-••
E	•

F	••-•
G	--•
H	••••
I	••
J	•---

K	-•-
L	•-••
M	--
N	-•
O	---

P	•--•
Q	--•-
R	•-•
S	•••
T	-

U	••-
V	•••-
W	•--
X	-••-
Y	-•--
Z	--••

0	-----
1	•-----

2	••----
3	•••----

4	••••-
5	•••••

6	-••••
7	--•••

8	----••
9	-----•

•	E
••	I
•••	S
••••	H
-•••	B
-----	0
•••••	5

-	T
•-	A
••-	U
•••-	V
-••-	X
•----	1
-••••	6

-•	N
•-•	R
••-•	F
-•-•	C
••----	2
--•••	7

--	M
•--	W
•-••	L
-•--	Y
•••--	3
---••	8

-••	D
•--•	P
--••	Z
••••-	4
-----•	9

-•-	K
•---	J
--•-	Q

--•	G
-----	---

---	O
-----	---

The following tables might be useful during the event.

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

AAAAA	A	ABBAA	N
AAAAB	B	ABBAB	O
AAABA	C	ABBBA	P
AAABB	D	ABBBB	Q
AABAA	E	BAAAA	R
AABAB	F	BAAAB	S
AABBA	G	BAABA	T
AABBB	H	BAABB	U/V
ABAAA	I/J	BABAA	W
ABAAB	K	BABAB	X
ABABA	L	BABBA	Y
ABABB	M	BABBB	Z

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

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

1	3	5	7	9	11	15	17	19	21	23	25
1	9	21	15	3	19	7	23	11	5	17	25

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N - 7.09%				

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# Morse Code:

A	•-
B	-•••
C	-•-•
D	-••
E	•

F	••-•
G	--•
H	••••
I	••
J	•----

K	-•-
L	•-••
M	--
N	-•
O	---

P	•--•
Q	--•-
R	•-•
S	•••
T	-

U	••-
V	•••-
W	•--
X	-••-
Y	-•--
Z	--••

0	-----
1	•-----

2	••----
3	•••----

4	••••-
5	•••••

6	-••••
7	--•••

8	----••
9	-----•

•	E
••	I
•••	S
••••	H
-•••	B
-----	0
•••••	5

-	T
•-	A
••-	U
•••-	V
-••-	X
•-----	1
-••••	6

-•	N
•-•	R
••-•	F
-•-•	C
••----	2
--•••	7

--	M
•--	W
•-••	L
-•--	Y
••••-	3
----••	8

-••	D
•--•	P
--••	Z
••••-	4
-----•	9

-•-	K
•---	J
--•-	Q

--•	G
-----	---

---	O
-----	---

The following tables might be useful during the event.

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

AAAAA	A	ABBAA	N
AAAAB	B	ABBAB	O
AAABA	C	ABBBA	P
AAABB	D	ABBBB	Q
AABAA	E	BAAAA	R
AABAB	F	BAAAB	S
AABBA	G	BAABA	T
AABBB	H	BAABB	U/V
ABAAA	I/J	BABAA	W
ABAAB	K	BABAB	X
ABABA	L	BABBA	Y
ABABB	M	BABBB	Z

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

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

1	3	5	7	9	11	15	17	19	21	23	25
1	9	21	15	3	19	7	23	11	5	17	25

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R - 6.41%	C - 3.87%			

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# Morse Code:

A	•-
B	-•••
C	-•-•
D	-••
E	•

F	••--•
G	--•
H	••••
I	••
J	•----

K	-•-
L	•-••
M	--
N	-•
O	---

P	•--•
Q	--•-
R	•-•
S	•••
T	-

U	••-
V	•••-
W	•--
X	-••-
Y	-•--
Z	--••

0	-----
1	•-----

2	••----
3	•••----

4	••••-
5	•••••

6	-••••
7	--•••

8	----••
9	-----•

•	E
••	I
•••	S
••••	H
-•••	B
-----	0
•••••	5

-	T
•-	A
••-	U
•••-	V
-••-	X
•-----	1
-••••	6

-•	N
•-•	R
••-•	F
-•-•	C
••----	2
--•••	7

--	M
•--	W
•-••	L
-•--	Y
•••--	3
---••	8

-••	D
•--•	P
--••	Z
••••-	4
-----•	9

-•-	K
•---	J
--•-	Q

--•	G
-----	---

---	O
-----	---



Timed Question [153 points] Solve this **Aristocrat**. When you have solved it, raise your hand so that the time can be recorded and the solution checked.

VNB TQ HPBY CNS, E WNCKEZFB KIH HFB PK P YIBCHEMF

YOBNIJO SOEWO NCF TIKY HPKK, EC NBZFB YN JFY YN LFZ.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
Frequency		8	5		5	7		5	4	2	6	1	1	8	4	4	1		2	2		1	2		7	3
Replacement																										

## Values to decode for solution

--	--	--	--	--

--	--	--	--	--

H O M E R  
 + R O A R E E  
 -----  
 V E R G I L

[illegible]

--	--	--	--	--

**XUPCR.**

[illegible]

★(Special Bonus Question) 3) [263 points] Solve this **Porta**, a quote from Dr. Seuss. The key used was 6 letters long, and the quote begins with **SOM**.

F	F	R	V	A	Y	Z	N	A	C	N	U	D	L	W	B	A	Y	B	E	A	R	L	U	P	F	R	L	R	Y

P	W	B	V	W	Q	A	Z	B	Y	X	Q	A	J	E	V	L	C	N	I	W	B	O	P	C	U	W

4) [276 points] Solve this **Aristocrat**, a quote from an aerospace engineer.

EC FIHC ZCZVSBMCZ MI FBOVKJ WIDVZ BSNVCUCFCKMW MNBK

VK HAKVKJ BLMCH WQVLM EAM WTKMNCMVS NBRRVKCWW.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
Frequency	2	6	10	1	2	3		3	3	2	9	2	9	4	1		1	2	3	1	1	9	6			4
Replacement																										

5) **[217 points]** Solve this **Hill**, a quote from the lesser-known school song of a certain university. It has been encoded using a keyword of **LION**.

$$\begin{pmatrix} L & I \\ O & N \end{pmatrix} \equiv \begin{pmatrix} 11 & 8 \\ 14 & 13 \end{pmatrix}$$

F	T	N	E	I	U	V	H	F	U	M	F	E	B	Q	M	M	B	N	G	I	M

6) **[389 points]** Solve this **K1 Spanish Aristocrat**, a somewhat comforting quote. It has been encoded using a K1 alphabet and an English keyword.

GCQC GVFVOCG APBCG IAÑ JVM VA QÑ JPUÑ. GPA VOSÑFWC,

GPVODFV DCUFVOCG UPGNFIHÑF UV QÑ PAOÑUIFVM.

K1	A	B	C	D	E	F	G	H	I	J	K	L	M	N	Ñ	O	P	Q	R	S	T	U	V	W	X	Y	Z
Frequency	5	1	7	2		7	8	1	3	2			2	1	7	5	6	3		1		5	10	1			
Replacement																											

7) [243 points] Solve this **Baconian**, an inspiring quote from Elon Musk.

ABBBBBBAABABBBABBABBABBABBABBABBBABBBBBABBBBBBABB

BBBABBAABABAABABABABABAABBAABAABBAABBBABBBBBBBBAABB

ABBABBBBAABBABBBBAABBABAABBABBBABBAB

8) [302 points] Solve this **K1 Aristocrat**, a quote from Ludwig Wittgenstein.

HVX DVL MI VPVFAX MI PIXZAU - VXZ LI JAUDVJL ZI

JAIJGAL. LYWAXYA WL V PVR IB LAXZWXC DWH MI LGAAJ

VCVWX.

K1	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
Frequency	10	1	2	3		1	2	2	8	5		8	3			3		1			2	10	5	8	2	4
Replacement																										

★(Special Bonus Question) 9) [189 points] Solve this **Nihilist**, a rousing statement by a certain Columbia alum. It has been encoded using a keyword of **BARACK** and a Polybius key of **OBAMA**.

87 36 66      47 24 69 55      43      64 57 78 55

	1	2	3	4	5
1					
2					
3					
4					
5					

34 45 56      68 65      64 45 35 58 43 34 ?

10) [250 points] Solve this **Aristocrat**.

NZOOY WHFO WO KODGOBO NEHN IO PHV HDYU ZOVOI HVQ

ZOYEHXO UCZ DGBUY, VU WHNNOZ IEHN IO LHPO GV DGLO.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
Frequency		2	1	4	3	1	4	9	4		1	2		6	17	2	1				3	5	3	1	4	5
Replacement																										

11) [402 points] Solve this **Nihilist**, the alleged last words of a flight-inclined Columbia alum. The quote begins with **WE ARE ON** and was encoded with a Polybius key of **RADIO**. The (non-Polybius) keyword is 5 letters long.

94 35      34 74 37      56 27      66 63 37

	1	2	3	4	5
1					
2					
3					
4					
5					

55 44 37 55 ,      39 56 44 37 57      29 56 54 66 63

26 57 34      65 46 59 86 43 .

12) [511 points] Solve this **K1 Patristocrat**, a derisive quote from everyone's favorite pop star.

GNWCD ZXDJ D QZOWN RGO FZ YPTRF WRZVR FGVOJ GXYOF

DOPXD WEOFG VGVOF DVWXY OFZOX DQDND XCVLP OOGXY

OFZOW XKDBW KDWXC PCD

K1	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
Frequency		1	4	12	1	8	7			2	2	1		3	13	4	2	4		1		6	8	9	4	6
Replacement																										

13) [361 points] Solve this **Complete Columnar**, a mildly funny joke. You are told that the quote has **SANDAL** somewhere in it.

TFLOR OAOAR ATTSS GOAHE DFENW PNOWE YADSP D

**Answer :** \_\_\_\_\_

14) [346 points] Solve this **misspelled K1 Aristocrat**, a quote from one of many, many required readings.

GBG BPFF IGAGW NPIGJ YOKY FPNG NTZW BOPMO GBG KWG

FTTRPIH. JKIMG KIJ LG SKWWD; NTWG YOPX YTT PX YOG

FTY TN SKI.

K1	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
Frequency	1	4		1		5	13	1	6	3	6	1	2	5	5	7		1	2	8			6	2	6	1
Replacement																										



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15) [277 points] Solve this **Complete Columnar**, a quote from a rather obscure reading. You are told that the quote has **DELIGHT** somewhere in it (which is not how this test writer felt while reading it).

EHROX LXTTI OUIXE FISEH XLLTN HDTHO SNDGX IIHGE

DXKGE MEEEX

**Answer:** \_\_\_\_\_

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★(Special Bonus Question) 16) [351 points] Solve this **Baconian**, a quote about the possessions of a Columbia-graduated founding father. You are told that the plaintext ends with **RAIN**.

A CASE A KING A PLAN BE OLD ALPHA A BABY ACRES A KING

BACK A ACRES A CALL A BOOK BE ITS BACON A CASE ABBEY

A CALL A CASE BE ITS A PLAN ALPHA ABBEY A PLAN BE ITS

A KING EARTH A GOOD BACK A A CASE A BOOK ABBEY

17) [231 points] Solve this **Aristocrat**, yet another imperative about life.

WMTXO WHWVO FUIZW IMZ MWY FWMFIJNXM JUIJ GXLWF YNJU

NJ, LICNMQ OXB EWWK IKNHW.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
Frequency		1	1		1	4	1	2	6	5	2	2	6	5	3		1			1	3	1	10	4	2	2
Replacement																										

18) [251 points] The following **Cryptarithm** provides the key to decoding the values 31264 6967. What do they decode to?

Values to decode for solution

31264

6967

Cryptarithm formula

S

T

U

D

Y

+

T

H

E

S

I

S

D

E

G

R

E

E

	0	1	2	3	4	5	6	7	8	9
A										
B										
C										
D										
E										
F										
G										
H										
I										
J										
M										
N										
O										
P										
R										
S										
T										
U										
Y										

19) [274 points] Solve this **Baconian**, a quote from Mark Twain concerning a part of speech.

AXAXZXZOAOZXAXZXAOZXZOZXZXAOZXZXZOAXAOZOAXZOAXZXZO

AXZOZOZXZOAXZOZOZXZXZOZXZXAXZOZXAXZXAXZXAXZOZXAOZO

AXZOAOZXAX

20) [341 points] The following **Cryptarithm** features remarkably ugly buildings and provides the key to decoding the values 91607. What do they decode to?

Values to decode for solution

9 1 6 0 7

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Cryptarithm formula

$$\begin{array}{r}
 \text{M U D D} \\
 + \text{P U P I N} \\
 + \text{C A R M A N} \\
 \hline
 \text{M C B A I N}
 \end{array}$$

	0	1	2	3	4	5	6	7	8	9
A										
B										
C										
D										
I										
M										
N										
P										
R										
U										

21) [341 points] Solve this **K1 Spanish Xenocrypt**, which was encoded using a K1 alphabet and an English keyword.

QG VZJ XJ UÑJWKJ JS ZS QZFWX XJ MGRUJSXH MGS QG VZJ

XJ GLYÑJSJ JS GYWG. NWHMHXHW JS ZSH GMHXÑGS D

YWÑZSNHW JS QH GYWH.

K1	A	B	C	D	E	F	G	H	I	J	K	L	M	N	Ñ	O	P	Q	R	S	T	U	V	W	X	Y	Z
Frequency				1		1	10	10		14	1	1	4	2	4			4	1	11		2	2	8	6	4	6
Replacement																											

P O J H V M B U T G Y O O W M

F C K C P U R V V A D L J N

Y J S P T B

Y C F B U P Q O R V V A

T N U P V J K I Q V W A

B T X K R A

[illegible]

Q	C	J	X	E
E	Z	O	T	E
S	W	L	T	E
S	S	H	Z	E
T	A	I	O	L
D	B	F	P	J
D				

Q PIBM SDRV AMVDAXML NAYW JYRVYX. QV QR VPM YXUF

RIXM VPQXO VY LY QN FYD NQXL FYDARMUN LYCX VPMAM.

Replacement																											
K2	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	
Frequency	5	1	1	4		3			2	1		4	8	4	1	4	6	5	1		2	8	1	7	9		

$$\begin{pmatrix} T & E \\ S & T \end{pmatrix} \equiv \begin{pmatrix} 19 & 4 \\ 18 & 19 \end{pmatrix}$$
[illegible]

26) [268 points] Solve this **K1 Aristocrat**, a quote from Kelly Martin. What was the keyword used to encode it? (You will only receive credit for the keyword.)

Enter the Keyword here

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Cipher:

THG'M EXM AHSE LXMMVGA YXWHFX BXSUQ OXVABML. KXFSVG

ZEXPVYEX SGT SEEHO KHHF ZHK VGMNVMVUX WBSGAXL.

K1	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
Frequency	4	3			6	3	6	7			3	3	7	1	2	1	1		6	2	2	7	2	11	2	2
Replacement																										

27) [211 points] Solve this **Complete Columnar**. You are told that the quote has **LURE** somewhere in it.

EDUMG WUHTX USAEA IORTE CAICN TYEMR SSFRE OHAAT

CNLOD SOTAS

Answer: \_\_\_\_\_



28) [498 points] Solve this **K1 Patristocrat**, a quote which could be useful to some of you this coming February. You are told that the sequence **ORWC** decrypts to **LOVE**.

**FBCGC UFORW CUFRE LCUDE CQRF F BRUCL QXBLH BORWC**

**LURQO ZUSRN CQGVF FBRUC LQXBL HBLFL UDHFC IVSRQ**

K1	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
Frequency		7	10	2	2	9	2	3	1			8		1	3		6	9	2		8	2	2	2		1
Replacement																										

29) [284 points] Solve this **misspelled Aristocrat**, a quote from Brandon Sanderson.

**FFJ PCM CGCEOAU IBP GCAR WBBNM PBA HBDYL SFFJ OAJB C**

**QBBG, CMMDGOAU PBA LOLA'J PBAJ JBB GBTF CQBDAL TFQR**

**GDHI .**

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
Frequency	9	14	7	4	1	6	6	2	2	6		4	4	1	4	5	3	2	1	2	2		1		1	
Replacement																										

30) [265 points] Solve this **Aristocrat**, a timeless observation about travel.

**LATB IXZ FTUGT BTL IXSQ, IXZ UST UHVXBNHATY UV AXL**

**MFTUB VAT STHV XC VAT LXSFY NH. MFTUB NH BXV TBXZEA.**

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
Frequency	6	7	1		1	4	1	5	3			4	2	3			1		4	12	6	6		9	2	3
Replacement																										