

Science Olympiad – North Carolina Regional Test 2

2019

Exam Preparation

You will need:

1. Folders for each of the teams to hold the tests
2. Sufficient copies of the test for all teams. They don't need to be stapled.
3. Multiple timers which have a lap function on them - ideally one per volunteer. The timer app on an iPhone or Android Phone that has a stopwatch function with lap function is sufficient.

Before the event begins:

1. Practice starting the timers and using the lap function to record the times. Make sure volunteers understand how to use the lap function and are not accidentally stopping the timer completely.
2. Memorize the answer to the timed question.
3. Check to make sure that this key matches the test you are proctoring.
4. Place one copy of the test for each team in the provided folders with the first page outside the folder.
5. Adjust desks and chairs – teams may have up to 3 students for this event.

Running the Event

1. When the students enter the room, instruct them to sit down, **DO NOT OPEN THE FOLDER**, and put their names, school name and school number on the first page.
2. Encourage them to write their team number on all the other pages **AFTER** they begin the test. This way if their papers gets separated from each other we can make sure to give them credit.
3. **CRITICAL:** Check to see that students have **ONLY** brought
 - i. Something to write with (pencils, pens, erasers)
 - ii. Five function calculators (addition, subtraction, multiplication, division, and usually square root). The calculator can have a simple memory store/recall function but must not have a modulus or other scientific and programmable functions. If their calculator doesn't meet these requirements, they may not use it.
 - iii. If there are spare calculators in the kit, you may loan up to one per team to use for the test.
 - iv. If the student has a smart watch (Apple watch, Samsung Gear, etc.) they will need to put it away.
4. Instruct the students that if they answer the timed question within 10 minutes, they can be awarded a bonus if they solve the timed question with no more than 2 letters incorrect.
 - i. When they have a solution for the cryptogram they should raise their hand.
 - ii. Let them know that you will announce when the 10-minute time is up. After the first 10 minutes, no additional bonus points will be awarded.
 - iii. When you see a team raise their hand, hit the LAP function and head to the team.
 - iv. Determine if their answer is correct (see next page for grading), If so, write the time on their score sheet.
 - v. If their score is incorrect (more than 2 letters incorrect), tell the team that the answer is wrong, but **DO NOT** tell them what is wrong. They can continue to work on the question and raise their hand again to be checked. A team has an unlimited number of attempts during the 10-minute bonus.
5. Tell the teams that they do not have to fill in the frequency table. It is simply there as an aid to them solving the cryptogram. It will not be graded.
6. Some students may never have used a non-scientific calculator. You should have them enter a simple formula on their calculator: $1 / 26 = *$
 $26 = ..$ Most will be surprised to see that the answer is not rounded to 1 as they expected but .999999999
7. When the timers hit the 10-minute point, announce that no bonus points will be awarded and put away the timers. The students may continue to work on the question, but they may not receive any extra points.
8. A team is not restricted to only the timed question during the 10 minutes. They can move on or split up the work if they would like, but it is in their best interest to try for the bonus.
9. When time is up, have the students put writing instruments down and put their answer pages back into the folder in the correct order.

How to grade

1. Teams can have up to two incorrect letters total on their cryptogram and still be correct. The frequency of the incorrect letter is irrelevant. See the example below.

If the cryptogram was as shown:

KZBAOF KFXMFXYP

SAMPLE SENTENCE

and the students answered (underlined letters indicate mistakes)

SAMPLE SENTENCE

then it counts as four mistakes (even though the mistake was only in the letter E) and the answer DOES NOT count. However, if they put

SAMPLE SENTENCE

It is considered correct with two letter mistakes.

2. For questions which have a numeric answer (such as determining the a= and b= values), no mistakes are allowed.
3. Teams do NOT have to fill in the frequency table. It is simply there as an aid to them solving the cryptogram. It WILL NOT be graded. It is included in the answer key as an aid to the grader.
4. When scoring the Baconian ciphers (with strange text or symbols), they can write the answer under the Baconian symbols or on the line provided. Note that you will see lots of As and Bs, but they are not graded as the answer, only what they put on the answer line.
5. As you score each question, if correct, put the number of incorrect letters (0, 1, or 2) next to the question number on the scoring page. Also, put the value for the question into the score column. If they get more than 2 letters wrong, subtract 100 points from the score until it would be zero. If a question is worth 240 points and they get 4 letters wrong, you would start with 240 points (for up to 2 letters wrong) and then subtract 100 points for the next two letters wrong ending up with a final score of 40 points for that question. If they had gotten 5 or more letters wrong on a 240 point question, they would receive 0 points for that question. With a 650 point question, they could get 8 letters wrong and receive 50 points (2 free letters then $6 \times 100 = 600$ points off). Just put the incorrect cost deduction on the score sheet and subtract it from the value for the question. Under no circumstance should the score for any question be less than zero. Note that while the timed question must have 2 or fewer letters incorrect in order to get the timing bonus, a team solving the timed question after the 10 minutes passed would be accepted as correct with 3 incorrect letters receiving 100 points for the timed question.
6. If they correctly answered the timed question in 10-minutes or less with 2 or fewer letters incorrect, you need to compute the bonus time. Take the value for the minute from this first table below

0:xx	2,160	1:xx	1,920	2:xx	1,680	3:xx	1,440	4:xx	1,200
5:xx	960	6:xx	720	7:xx	480	8:xx	240	9:xx	0

and then add the seconds value from this table:

X:00	240	X:01	236	X:02	232	X:03	228	X:04	224	X:05	220
X:06	216	X:07	212	X:08	208	X:09	204	X:10	200	X:11	196
X:12	192	X:13	188	X:14	184	X:15	180	X:16	176	X:17	172
X:18	168	X:19	164	X:20	160	X:21	156	X:22	152	X:23	148
X:24	144	X:25	140	X:26	136	X:27	132	X:28	128	X:29	124
X:30	120	X:31	116	X:32	112	X:33	108	X:34	104	X:35	100
X:36	96	X:37	92	X:38	88	X:39	84	X:40	80	X:41	76
X:42	72	X:43	68	X:44	64	X:45	60	X:46	56	X:47	52
X:48	48	X:49	44	X:50	40	X:51	36	X:52	32	X:53	28
X:54	24	X:55	20	X:56	16	X:57	12	X:58	8	X:59	4

For example if they solved the time question at the 6:46 mark, you would add 720 (from the 6:xx entry in the first table) to 56 (from the X:46 entry in the second table) to get a bonus of 776. If they had solved it in exactly 4:00 minutes, you would add 1200 and 240 to get a bonus of 1440.

7. Add up all the scores and put the total on the bottom of score sheet.
8. You must break all ties. Indicate the tie breaker by adding .1 to the score of the team ahead. With multiple teams tied, you will add more. I.e. if five teams all scored 200 points, the final scores that you would enter on the score sheet would be 200.4, 200.3, 200.2, 200.1 and 200.
9. To determine how to break the tie, you need to look at the correctly answered questions in the order from the table below. If both teams answered the same (i.e. they answered the question with zero mistakes) then you go on to the next question. If one team had no mistakes

and the other team had one mistake, then the team with no mistakes is ahead. For example, if one team answered question #8 (which is the highest value question) and another team didn't, the first team will be ahead.

Tie Breaker Order	Question #
1	14
2	11
3	6
4	7
5	9
6	3
7	12
8	16
9	18
10	15
11	Timed
12	17
13	4
14	1
15	13
16	10
17	8
18	5
19	2

0. If there is still a tie (typically when you have teams which answered either zero, one or two questions) then you will need to look at the tie breaker questions again and count the number of correctly answered letters. The team with the most correctly matched letters is to be ahead.

Timed Question [200 points] Solve this quote by Antoine de Saint Exupery. When you have solved it, raise your hand so that the time can be recorded and the solution checked.

VRCIRZOXPJ XU HZLXRTRQ, JPO ELRJ OLR CR XU JPOLXJK
PERFECTION IS ACHIEVED, NOT WHEN THERE IS NOTHING

BPCR OP HQQ, FMO ELRJ OLR CR XU JPOLXJK NRIO OP OHAR
MORE TO ADD, BUT WHEN THERE IS NOTHING LEFT TO TAKE

**HEHW.
 AWAY.**

	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	4		3	1		5	2	8	2	7	1	1	11	7	3	13		1	3	1	1	7		2
Replacement	K	M	R	Z	W	B	X	A	F	N	G	H	U	L	T	O	D	E	Q	V	S	P	Y	I	J	C

1) [120 points] Encode this phrase by Roy T. Bennett using a Caesar cipher with a shift of 11. I.e. A is encoded as L

W	H	E	N	Y	O	U	O	P	E	N	Y	O	U	R	M	I	N	D	Y	O	U	O	P	E	N	N	E	W
H	S	P	Y	J	Z	F	Z	A	P	Y	J	Z	F	C	X	T	Y	O	J	Z	F	Z	A	P	Y	Y	P	H

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

A	N	D	N	E	W	O	P	P	O	R	T	U	N	I	T	I	E	S	T	O	H	E	L	P	O	T	H	E	R	S
L	Y	O	Y	P	H	Z	A	A	Z	C	E	F	Y	T	E	T	P	D	E	Z	S	P	W	A	Z	E	S	P	C	D

2) [100 points] Decode this phrase by Terry Pratchett which was encoded with with the Vigenere cipher using the keyword FIBER.

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

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

3) [400 points] Figure out what these strange headlines encoded using a Baconian alphabet mean. It was said by Douglas Adams and starts out with I MAY N What does it say?

FIXED PORCH JEWEL BLANK FACED ENTRY TREND FROM A
 ABAAA ABABB AAAAA BABBA ABBAA ABBAB BAABA AABBB
 I/J M A Y N O T H

LEVEL SPLIT PEARL PLATE QUILT.
 AAAAA BAABB AABAA AABBA ABBAB.
 A U/V E G O

WATER REBEL BROKE FLOAT, WE SEE OLDER WEIRD POWER.
 ABBAA AABAA BABAA AABBB, AABAA BAAAA AABAA ABAAA.
 N E W H E R E I/J

LOWER LAYER UP FOR DRIED EAGER FLEAS.
 ABAAA ABBAA BAABA AABAA ABBAA AABBB.
 I/J N T E N D

WE ALL LEFT A CLEAR ENTRY, FRAME LOSES EVERY MERIT.
 AABAA AAABB BAABA ABBAB, AABBA ABBAB AAAAB BAABB.
 E D T O G O B U/V

UP FOR WORLD MEDAL, JENNA FIXED LOSER RULES.
 BAABA ABAAA BAABA, AABBB ABAAA ABBAA ABAAB.
 T I/J T H I/J N K

POWER FRUIT FREED GREAT DWARF REBEL EAGLE.
 ABAAA AABBB AAAAA BAABB AABAA AABAA ABBAA.
 I/J H A U/V E E N

RELAY FRIED FRESH GERMS, WHACK GRAPE FEAST.
 AAABB AABAA AAABB BAABB, ABBBA BABAA AABBB.
 D E D U/V P W H

WE ARE OLDER, WE SEE RIVER WATER, LEAVE EXILE.
 AABAA BAAAA, AABAA ABAAA ABBAA, AABAA AABAA.
 E R E I/J N E E

PRESS PROVE EVEN A CLEAR VAULT FEELS WEIRD
 AAABB AABAA AAABB BAABA ABBAB AAAAB AABAA
 D E D T O B E

I may not have gone where I intended to go, but I think I have ended up where I needed to be.

4) [120 points] Encode this phrase by Jim Rohn using the Vigenère cipher with a keyword of JOULE.

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

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

5) [100 points] Decode this phrase by Sophie Kinsella which has been encoded using the Atbash Cipher

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

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

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

T	L	R	M	T	G	L	W	L	M	V	C	G	!
G	O	I	N	G	T	O	D	O	N	E	X	T	!

6) [600 points] Solve this Aristocrat encoded quote by Beth Kempton which was misheard and then typed in with mistakes before being encoded with a K2 alphabet.

TIQQPAG WO SQV CWZZWRURQOO KRP KLWZWSH SCA MVQCO
FREEDOM IS TEH WILLINGNESS AND ABILITY TWO CHEWS

HAE'IQ ACR NKSU KRP QFNQIWQORMQ HAE'IQ ZWQT KO HAE'IQ
YOU'RE OWN PATH AND EXPERIENCE YOU'RE LIEF AS YOU'RE

SIEQ OQZT.
TRUE SELF.

Replacement	K	L	M	P	Q	T	U	V	W	X	Y	Z	G	R	A	N	D	I	O	S	E	B	C	F	H	J
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	6		4		4	1	1	4	6		5	1	2	2	6	3	15	6	5	3	1	3	7			5

7) [500 points] Solve this Patristocrat K2 alphabet encoded quote by Neil deGrasse Tyson that starts with IF YOU.

VPFDC UOHDS ONJZZ ITOJU IOUVO LSOVY LJYNM JRVZZ
 IFYOU REMOV EDALL THEAR TERIE SVEIN SANDC APILL

JUVOL PUDHJ ROULD YLKDN FJYNI VONIT OHOYN IDOYN
 ARIES FROMA PERSO NSBOD YANDT IEDTH EMEND TOEND

ITORO ULDYB VZZNV O
 THEPE RSONW ILLDI E

If you removed all the arteries, veins, and capillaries from a person's body, and tied them end-to-end...the person will die.

Replacement	J	K	M	N	O	P	Q	T	V	W	X	Z	H	Y	D	R	A	U	L	I	C	S	B	E	F	G
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		1	1	7		2		3	6	7	1	6	1	8	15	2		3	2	3	7	8			7	6

8) [100 points] Encode this phrase from J.K. Rowling using the Affine cipher with $a=9$ and $b=8$.

O	N	E	C	A	N	N	E	V	E	R	H	A	V	E	E	N	O	U	G	H	S	O	C	K	S
E	V	S	A	I	V	V	S	P	S	F	T	I	P	S	S	V	E	G	K	T	O	E	A	U	O

9) [400 points] Solve this Aristocrat which is a quote by John Keats and was misheard by Alexa and encoded with a K1 alphabet.

SVG VGV ARPE DVL XPG RVUVDLLOM L GXYOKVS PW JLYRD
 DEW EWE KNOT SEA HOW NECESSARY A WHIRLED OF PAINS

LRS EOPQTKVD YD EGP DUXPPK LR YREVKKYNVRUV LRS BLAV
 AND TROUBLES IS TWO SCHOOL AN INTELLIGENCE AND MAKE

YE L DPKV?
 IT A SOLE?

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	2	1		8	5		5			1	6	9	1	1	3	8	1	8	4	1	3	13	1	3	6	
Replacement	K	M	Q	S	T	V	W	X	Z	P	L	A	Y	G	R	O	U	N	D	B	C	E	F	H	I	J

10) [100 points] Decode this phrase by David Levithan which has been encoded using a Caesar Cipher.

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

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

G U N G	G U R L	N E R	B A Y L	B A R	Q N L	N A Q	G U N G
T H A T	T H E Y	A R E	O N L Y	O N E	D A Y	A N D	T H A T

R I R E L	Q N L	R A Q F
E V E R Y	D A Y	E N D S

11) [600 points] Solve this Patristocrat encoded quote by Isaac Asimov which has been encoded using a K1 alphabet.

DQFGT WDFAN JDJKL UQEMW FDTQF MEJKW NJFKN FDQFT
 THEMO STEXC ITING PHRAS ETOHE ARINS CIENC ETHEO

KFDQM DQFEM IOWDQ FGTWD OJWNT YFEJF WJWKT DFXEF
 NETHA THERA LDSTH EMOST DISCO VERIE SISNO TEURE

SMHXD DQMDW PXXKB
 KABUT THATS FUNNY

The most exciting phrase to hear in science, the one that heralds the most discoveries, is not 'Eureka!' but 'That's funny...'

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	1		13	5	14	2	1	1	7	7	1	6	4	2	1	8		1	6	1		9	3	1	
Replacement	X	Y	Z	T	R	E	M	B	L	I	N	G	A	C	D	F	H	J	K	O	P	Q	S	U	V	W

12) [250 points] Solve this Aristocrat which is a quote by Calvin Trillin.

X UQKQC ZXZ KQCH YQTT XU EVAB - X PJWTZ UQKQC IQQE
 I NEVER DID VERY WELL IN MATH - I COULD NEVER SEEM

AJ DQCIWVZQ ABQ AQVPBQC ABVA X BVZU'A EQVUA EH
 TO PERSUADE THE TEACHER THAT I HADN'T MEANT MY

VUIYQCI TXAQCVTTH.
 ANSWERS LITERALLY.

	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	5	7	1	4			3	4	2	3					2	16			6	6	8	2	6	2	5
Replacement	T	H	R	P	M	Q	X	Y	S	O	V	G	Z	K	J	C	E	F	B	L	N	A	U	I	W	D

13) [100 points] Using a key of DAMP, compute the decryption matrix for a 2x2 Hill cipher using a 26 character alphabet.

$$\begin{pmatrix} D & A \\ M & P \end{pmatrix} \equiv \begin{pmatrix} 3 & 0 \\ 12 & 15 \end{pmatrix}$$

$$\begin{pmatrix} 9 & 0 \\ 24 & 7 \end{pmatrix}$$

14) [600 points] Solve this Xenocrypt in Spanish which is a quote by Georg Cantor that has been encoded with a K1 alphabet using an English keyword.

WV DQH RQIWRQITOQH WD QGIW XW SGUSUVWG JVQ SGWAJVIQ
EN LAS MATEMATICAS EL ARTE DE PROPONER UNA PREGUNTA

XWYW IWVWG JV KQDUG RQH QDIU FJW GWHUDKWGDU.
DEBE TENER UN VALOR MAS ALTO QUE RESOLVERLO.

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			6		1	8	4	6	4	2					1		10	3	3	1	6	6	14	2	1	
Replacement	G	J	K	L	Ñ	Q	R	S	T	U	V	W	X	Y	Z	C	H	A	M	P	I	O	N	E	D	B	F

Translation: *In mathematics the art of proposing a question must have a higher value than solving it.*

15) [200 points] Solve this Aristocrat which is a quote by Isaac Asimov in which the word THE appears twice.

MROG IOC PS LEHS NLUEHGOCG GROC GRS YINSCIS EV QNVS
WHAT CAN BE MORE IMPORTANT THAN THE SCIENCE OF LIFE

GE OCZ NCGSQONDSCG PSNCD MRE ROY GRS DEEA VEHGJCS GE
TO ANY INTELLIGENT BEING WHO HAS THE GOOD FORTUNE TO

PS OQNFS?
BE ALIVE?

	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		9	3	9	1	11	3	3	1		2	2	7	7	3	4	6	13		1	3			2	1
Replacement	D	J	N	G	O	V	T	R	C	U	X	M	W	I	A	B	L	H	E	K	P	F	Z	Q	S	Y

16) [240 points] Decode this quote by Jennifer White in *Strong Heart Awakening* which has been encoded using a Baconian cipher.

pdddppppdpppdppdppdddppdpdppppdppdpdppppdppdppdppdppdppdppd
ABBBAABAAABBABABBBAAABABAAABAABABAAAABBBABBABBAABAAAB
P E O P L E W H O T E

pppdppppdppdpdppdppdppdppdppdppdppdppdppdppdppdppdppdppdppdppdppd
AAABABAABABABABBAABBABBAABBBAABAABBABBAABBAABAABBABA
L L Y O U T O S T O

dddppdpdppdppppdppdppppdppppdppdppppdppppppppppdpp
BBBAABABAABAAABAABBABAAAABBAAAAABBAABAABBAABAAAAAABA
P L I V I N G I N A F

dppppppdpppdppppdppdppdppdppppppdppdppdppdppdppdppdppdppdppdppd
BAAAAABAAABAAAABABBABAABAAAAABABAAABAABABAAABBABBA
A I R Y T A L E W O

ppppdpdppppdppppppdppppppdppdppdppdppdppppdppdppdppdppdppdppdppd
AAAABABAABBAABAAAABAAAABAABAABBAABAABAAAABABBAABABA
R L D A R E V E R Y L

pdppppdppdppdpppdppdppdppdppdppdppdppdppdppdppdppdppdppdppdppdppd
ABAAAABAABAABABABABABBAABBBAABAABBAABABBBAAABABAAAB
I K E L Y P E O P L E

ppdpdppppdppdppdppdppdppdppdppdppdppdppdppdppdppdppdppdppdppdppd
AABABAAAABBBABABABABAABAABAABBAABAABAABAAAABBAABAAAAA
W H O L I V E I N A

pdddppdppdppppdppppppdppdppppppdppdppdppdppdppdppdppdppdppdppdppd
ABBABBBABBAABAABAABBAABBAABAABBAABBAABBAABBAABAABA
H O R R O R M O V I E

P
A

People who tell you to stop living in a fairytale world are very likely people who live in a horror movie.

17) [120 points] Encode this phrase by Stanley Victor Paskavich using the Atbash Cipher

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

18) [220 points] Solve this Aristocrat which is a quote by Lorie Myers that starts with UPON.

VAGY RJFPLEPYZ R UPHLUGYZ XNLR S, P IFGVZFI, IFPB PB
 UPON ACHIEVING A LIFELONG DREAM, I THOUGHT, THIS IS

IFL TRQ IG UPEL QGVN UPHL -- PY IFL SGSLYI, RYX IG
 THE WAY TO LIVE YOUR LIFE -- IN THE MOMENT, AND TO

IFL HVUULBI.
 THE FULLEST.

	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	3			2	7	7	3	10	1		10		2		9	2	5	3	1	6	4		2	6	3
Replacement	P	S	Q	J	V	H	O	F	T	C	Z	E	B	R	X	I	Y	A	M	W	L	U	K	D	N	G