Codebusters C - Codebusters Camas C Invite - Camas C-Invite - 12-12-2020

1. (300.00 pts) Timed Question. Decode the following ciphertext:

[FREQUENCY]

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

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

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

P	W	D		R	'	N		K	J		N	Q	S	W	W	U	.		Z	G	U	U		P	A	G	N	N		Z	S	O	D	,		K		P	G	D		B	'	N	!	!	!
G	O	T		D	'	S		I	N		S	C	H	O	O	L	.		W	E	L	L		G	U	E	S	S		W	H	A	T	,		I		G	E	T		F	'	S	!	!	!

2. (200.00 pts) Decipher the following phrase encrypted with a Caesar Cipher:

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

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

3. (350.00 pts) Decode the following ciphertext:

[FREQUENCY]

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

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

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

4. (500.00 pts)

Amy has faithfully followed the steps of the RSA key-generation algorithm, but has forgotten the last step—how to encrypt a message. First, here are the results from the other steps:

$p = 311$ $n = 257197$
$q = 827$ $e = 79449$
$\Phi = 256060$ $d = 30589$

As it comes to pass, Jake is on vacation in Hawaii, and Amy needs a document that is stored in the company safe. They are communicating via email, and they both know it is very unwise to trust the security of computers in a hotel lobby. Amy needs to tell Jake his public key, knowing well that it can be read by untrustworthy parties. List the minimum set of numbers that Amy needs to email to Jake in order for Jake to be able to decode the message.

Additionally, Jake wants to transmit the combination to the safe (which is 930) in the response email but encrypted with RSA. What formula should Jake compute in order to know the ciphertext to transmit?

Expected Answer: Set of numbers (order doesn't matter): 257197, 79449 Formula: (930 ^ 79449) mod 257197

5. (350.00 pts) Decode the following ciphertext:

[FREQUENCY]

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

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

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

6. (400.00 pts) Decode the encrypted message:

AABBBABBABBABAAAABAAAAAAABAAABABAAAABABABABBAAABBB

AAAAAABBBAABBBAABAAAABBAAAABAABAAABBAAABAAAABAABAA

AABBAABAAAABBAABAAABAAAABBABBAAAABBABAAAAAABAABAAA

ABBAAAABBAABBABABBAAABAAAABBABABBAABAAAB

Expected Answer: "How easily happiness begins by dicing onions"

7. (400.00 pts) Decode the following ciphertext:

[FREQUENCY]

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

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

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

8. (375.00 pts) Encode the following text with the Vigenere Cipher using the code: "OMELET"

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

c	o	m	b	i	n	e		t	h	e		e	g	g	s	,		y	o	l	k	,		s	a	l	t	,		p	e	p	p	e	r	,		m	i	l	k	,		a	n	d		h	e	r	b	s	,		i	f
Q	A	Q	M	M	G	S		F	L	P		I	Z	U	E	,		C	Z	P	D	,		G	M	P	E	,		T	X	D	B	I	C	,		Q	B	Z	W	,		E	Y	H		A	S	D	F	D	,		M	Y

u	s	i	n	g	,		i	n		a		m	e	d	i	u	m		b	o	w	l		a	n	d		w	h	i	s	k		u	n	t	i	l		h	o	m	o	g	e	n	o	u	s		a	n	d
I	E	M	Y	K	,		B	B		M		Q	P	H	B	I	Y		F	Z	A	E		O	Z	H		H	L	B	G	W		Y	Y	X	B	Z		T	S	X	S	Z	S	Z	S	F	W		T	B	P

f	r	o	t	h	y
J	C	S	M	V	K

9. (550.00 pts) Given the plaintext, "PIANOS,"

and the key "BEAT,"

encode the plaintext using the Hill Cipher.

Expected Answer: "VWANIE" Give partial credit to correct letters if they are in the correct spot.

10. (400.00 pts) Decode the following ciphertext:

[FREQUENCY]

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

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

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

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

11. (450.00 pts) A quote has been encoded using the Pollux Cipher for you to decode. You are told that 1=●, 2=–, 3=–, 4=×, 5=●, 6=–

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3555803423725054623436648019551785387050391402573026991 51
9153451582903910825816431154165040796291393704131451916
7060098068050745576741545119462642590772639003194290550
7547023966245657161186158750194103171295018291815183482 60
4135732681627054218320871661956558539317370 10
```

Expected Answer: Bamboo is a very sustainable material as it is one of the world's fastest growing plants.

12. (400.00 pts) The following quote needs to be encoded with the Affine Cipher using ***a*=19** and ***b*=6**.

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

H	**a**	**p**	**p**	**y**		**l**	**i**	**t**	**t**	**l**	**e**		**t**	**r**	**e**	**e**	**s**	**.**
J	G	F	F	U		H	C	D	D	H	E		D	R	E	E	K	.

13. (375.00 pts) Decode the following ciphertext:

[FREQUENCY]

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

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

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

N	**Y**	**.**
I	T	.

14. (400.00 pts) Decode the following ciphertext encoded with the Vigenere Cipher and the key: "LEMON"

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

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

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

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