CSC/MAT 483 – 001

**CSC/MAT 483 – 001 Spring 2015**

**Cryptology**

**Test One**

This is a test. You may not collaborate.

It is due no later than Monday 2 March. It may be submitted electronically or as a hard copy.

Each problem is worth 10 points. Do only 10 problems.

Explain your approach to each problem that you do.

You may use software that is posted on the class website, use *Mathematica*, use a calculator, work by hand, or use software that you wrote.

1. Cryptanalyze:

LCZQV OEWZT LEIZB EWEPM VKWVB IKBEI AUIQV BIQVM LUIQV TGJGZ ILQWK QXPMZ AXTIG MLIKW VAQLM ZIJTM ZWTMB PMGKW VABQB CBMLI BGXMW NEMIX WVBPM XWTMA XTIGM LIVMF BZMUM TGQUX WZBIV BXIZB QVMNN MKBQD MTGCB QTQHQ VOBPQ AEMIX WVQVB PMEIZ IOIQV

2. The following message was enciphered with keyword ciphers. It was first enciphered with a keyword cipher with keyword CORAL and keyletter M and then re-enciphered with a keyword cipher with keyword PYTHON and keyletter D. Construct the composed key and decipher the message (which is a name).

ZDXRD FXKSK OPUR

3. Cryptanalyze:

QSRAJ UCOHU PWOER AKUAJ EYZQR URCUH VKEKE REJQA JUCJF ERESH JOPJF EMEUA ENORE MQHVO JOQHA KEREG HQKHU HVSHJ OPPON EOHNR UHMER EJSRH EVJQA QYEAQ RJQNH QRYUP JOC

4. Cryptanalyze:

V EO WYP SAUL YG PQL YUFLU YG YAU GAUPQLU MUCHPYDUEHQVM FAPVLS WYU MEW V ULOLOKLU BQLPQLU BL SPVTT FLETP BVPQ PQL LWVDOE MVHQLU.

5. Cryptanalyze:











6. Complete the following keyword cipher key:



7. Determine the key for the following Playfair cipher:

ak ey wo rd ci ph er is ce rt ai nl ys tr on ge rt ha

LI FX VP PF AH OI FQ NA LB TO DP KS ZU OT TH BF TO IC

nt he si mp le sh if tc ip he r

TZ KB AN IR EK CN MD OS PW KB QY

8. Decipher the following ciphertext that was enciphered with a Hill cipher:

AR MJ WG YA TS was enciphered with .

9. Cryptanalyze:

VLHVD KHQLK QVFKR QYRQZ HLWHP DXIVL FKCXN RPPHQ GHQQH UILHO DXIHU KDWWH HLQJD QCDOW HVJHV LFKWD EHUZL HHUJL QJGDU DQVDK PDQGD VVHUH UVWCZ DQCLJ ZDUHU VHWCW HVLFK PLWVH LQHPD OWHQJ HVLFK WCXLK QHQDX IGLHE DQNXQ GGDQQ CHLJW HHULK QHQZD VHULQ GHUKD QGWUX J

10. Determine the key for the Hill cipher that enciphers

 and .

11. Cryptanalyze the following cipher. “jellybean” appears in the plaintext message.

lfyvq dfklg aklfj avekx felze ylgvl rzccq wzvek ozjzs ajklc aebzy oalgx zczwj vlafe kfszv klzja elgzm ealzy klvlz kkfdz ladza elgze aezlz zelga jlazk

12. Cryptanalyze the following message. “nomenclator” appears in the plaintext message.

EZGNM TAMDA EZEZM UEZEM PJVMR GDAWW AJVGT DVMDS MYIYG BDVTE IQVEI DGITE JGAYW MPPGB MZEUG ZWPMD ET