**Ciphertext 1**

OVTYURWUOCBGRSUYWAHJSZCQHWEGHGKVHABFGZDZVRBJETRZHUAAUUWVRYKUHEIGGXHUFUFFRESECHUVTNSFDUDKGGELNIVVHMEXARWSUZMBXTATPRWSELCEHNEXSGKIOAUUPZSZSELCLSOXHRMGBBXKOLMBXKRGBDXZLGGNIFRKGGELTUBSLIECWGKZNUBPHPOATVQUYUIEFVNZSEBFUGFRVLRKHBZZNECHUVAYDVQVLKGFSRLKDNWYEZWPOFTGBQBFUNOIHETMCGDTLASFRDENCJLCLSOXHRMGBBXKOLMBXZMTSIHIGUBADTAZQUPPBXSNWYSGMTRFDHMRWFTNCFHNHUYAHNMKPBBNAYWNIFORWAVTHUCYIFRIIGWZNMULPKHOGTXPSMCGHDSIOEHUTURRDKHNCCHYEJCRVETYSRUZGNHGKIOAUUPVNUKVUVARZLZZSNHUDKIQBRZYOCHBVNISPRDDATKRPLSZPRVNILHNVKHKQBXISOBTUZVKFOHRMGBJLKHGZYWYELCEFVOLOTUVAZHLSYOUBOHRMGBJLKHGZYWYEYHEHEGZVBIRRGUVQXFOFRPPSZSELFUYOFWYEJOENJIJSBIKHKABRETOARLJRGQVQXTUKNUUUYHVOCTNSUXESGFELMENSRGDYKJRUPOXRRURNJMBXDIMVGVLRBWIHPOAFRXESAWGHUFUFGKVRGURRWWGFFRGAIYHSXONCZHPOAFRWYRUITKYOCQBXCDOANNVASOARLTUTLRLBKOZDEWKAHVKBKGJLWTGGGKVCUIEVZNMFVYVRHSNPRNCWGKRLRHUHWOXQRRWAMFRDKTEDURFNHSNPRNCWGKRLRHUHJTXSAJKHUTNURGOBTIZRKALVKEXWBXJAYHUHUAXYFLUEUTGKVMUCA

**Ciphertext 2**

EPSEPAOPLTAFFZFRYLSEEWHUPZIFSWTQLGKUPVHUPPSNEWTGSMFBWTWARECEWLQNYJSGFZBROIKNJIBRYKVNYBSQXWARYBOAOQHFPMGZPBVEZCUUTBGRYWITSNCEEPWFCMGGWMGFHIFETWFWFAHGZJSJTBVLZCOAOKOAJWISPMZGSMZBGMHBYQUUEQHVDEVRCMKRLZSVEASAZCUUQWFGSQGJTLSRJMRJLVRRCMFGSIHJPOCGEPWFQIFNYLQNYGCHQMSYEPSYZDSGZVWTSBVBHQHFWIWQEWFRDBWGDMBBFOVGZUOXPSWARAOAODOTLJCAOAPRWQSIPBVRGMFLMMGGEPSEPAOGTUSSZZSIPZMBYMWSEPSLZVZLWMOEYBVNEBVREEWFEQBTVIZRTLCFNWDRXWJRDCGNWTWAECFAEPSEPAOESGARLVREPIGBYBCGSMKVWLCHELCBCAKUPVHUPPSNCBCSEPWFDBOENZCFDMRIZGOTPZPRLBGVYBWZPEWGSGCHCA

**Ciphertext 3**

DUAVFDIHAQZLGAGEUFLYTCKSGDMGVMUNLMPEVJQITNUWRBYJSGFNDMUMHVECDGOWQXYFUKFNWVUNLGEPBUHMTBUUSCSYKBKQXMXYUNZAVDCFOUFBWAGMLWIHQQGNOKZSDQDCLMVTCFOUOLWIOOIDWTQXHWPUYKIPPWJQUBUHXNQMLZGGXWTUPIGZDQFDACZXKTGUAZJGXFKIPPMUPPUNRMNICLPPAIVTGEQATFSYWAGFBSBHXSOQVTNZMOAIFWPFBWQTICFOUFBWAGMLWIHQQGNOKZSDQDCLMVTCFOUSCJTUUHOPKFYVZGEMWAYUNZJNGYKIVUHKIUTYKAPAQXTCWYKBJMNKBCKIFUAZIKMCZXWGGXUKPGEMATXQLOPKFYOQPFYJAVTULUGXNAVVAMHZKZAKBJQMWITQUXMYAZEGHMPGZKFYLPKZAKEJQHLPGPIYJKFYKEJQHLPGNYWAVUHYAYTYFQORYWTKZAKIFUMAURXSJMOQGTMTYSXIXALABGFBAVIEUFLVTYFQFAHLNGQFKWDMX

**Ciphertext 4**

FLVEEIZQIUUSIOIEPEGZHQRVDIVVAQVNOLBQPJQSTDWIPAULUQEDMBWXFKFUNOXBXYQRMEGXKTABLEESUGULEXRWERXEXCAOSDFXYQWWUXHRDOCQPCFGRQJTXYQRMRZXYQOKHMRWXOWUEYTTWWQPIIRUTWTMESSAXDVFGNLBAYNTABPAVVUSGRGPFAKQQRSIGNLHDXYQSMDGRUQRBKQWVMDIUXMESIBVNIKFEZGAAEIHMUQMKEWMWFIIFASHUXWDOUPQYGANBKQWYARMWTIPIOZNMPCPAGRGXZZTPHEYEFHMBEPRHEIZMCNTITHIIUQVWWURWGLTWUQVFONOAEKUNCQPIIFHMVQEUAWVKQVVMLTWTIWUSPLELRBPGDESWRTPUAYXTTPHIEMQSBKQCIALTWTIWUSPRZXYQLIQPEZZTPDBTPFHMBEEUOACVQXYQYQQFLVURJRIPSGTNLELZZTPHNSNXIAOGGBKTPHKMEROZDISIEEZIMXVANMGMCNTEVWTISASAJQXYGNOUKKLQSAZTSJSOVEQSEFHMSXEKQUVGQVKTEAHMYEPEZWTIJQAVRNSUKBMDFYJRRGXEEEPEIWGWZZFZLOEJEEMZQAYMTBKQPRZDNRXOJXODHEXFOOWNGRUQRBKQWVMWMRRJKTEPRAONQGWWZSKDOCEXIJXINHUWKTEJXNFCQSCQPIIFHMVQE

**Frequencies 1**

Key Length: 6

A: 0.0

B: 2.64

C: 0.0

D: 5.29

E: 1.32

F: 1.32

G: 1.32

H: 17.2

I: 3.97

J: 0.66

K: 6.62

L: 6.62

M: 0.0

N: 1.32

O: 1.98

P: 5.29

Q: 2.64

R: 7.28

S: 1.98

T: 0.0

U: 6.62

V: 6.62

W: 7.94

X: 8.60

Y: 0.66

Z: 1.98

A: 0.0

B: 0.0

C: 2.64

D: 3.31

E: 5.96

F: 6.62

G: 0.66

H: 0.0

I: 3.31

J: 3.97

K: 9.27

L: 4.63

M: 1.32

N: 3.97

O: 0.0

P: 4.63

Q: 0.0

R: 7.94

S: 1.98

T: 2.64

U: 6.62

V: 10.5

W: 3.31

X: 1.98

Y: 6.62

Z: 7.94

A: 8.60

B: 1.98

C: 0.66

D: 2.64

E: 9.93

F: 1.98

G: 2.64

H: 6.62

I: 3.97

J: 0.0

K: 0.0

L: 5.29

M: 4.63

N: 7.28

O: 10.5

P: 0.0

Q: 0.0

R: 7.94

S: 7.94

T: 9.93

U: 3.97

V: 0.66

W: 1.32

X: 0.0

Y: 1.32

Z: 0.0

A: 5.96

B: 0.66

C: 3.97

D: 0.0

E: 1.98

F: 0.0

G: 12.5

H: 1.98

I: 2.64

J: 2.64

K: 9.27

L: 3.97

M: 3.97

N: 6.62

O: 3.97

P: 0.0

Q: 0.66

R: 2.64

S: 2.64

T: 2.64

U: 11.9

V: 0.0

W: 0.0

X: 5.29

Y: 6.62

Z: 7.28

A: 3.97

B: 9.93

C: 9.27

D: 1.98

E: 0.0

F: 7.28

G: 5.29

H: 7.94

I: 2.64

J: 0.66

K: 2.64

L: 0.0

M: 3.97

N: 0.0

O: 5.96

P: 2.64

Q: 3.31

R: 1.98

S: 9.93

T: 2.64

U: 4.63

V: 2.64

W: 6.62

X: 0.0

Y: 1.98

Z: 1.98

A: 4.63

B: 9.93

C: 0.66

D: 0.66

E: 7.28

F: 5.96

G: 11.2

H: 2.64

I: 1.98

J: 2.64

K: 0.0

L: 3.31

M: 0.0

N: 6.62

O: 1.32

P: 1.32

Q: 1.32

R: 15.2

S: 0.66

T: 3.97

U: 7.28

V: 5.29

W: 0.0

X: 1.98

Y: 1.98

Z: 1.98

**Frequencies 2**

Key Length: 4

A: 0.0

B: 0.0

C: 4.65

D: 4.65

E: 13.9

F: 3.10

G: 1.55

H: 1.55

I: 0.0

J: 2.32

K: 0.0

L: 5.42

M: 0.77

N: 1.55

O: 3.87

P: 13.9

Q: 2.32

R: 1.55

S: 7.75

T: 4.65

U: 0.0

V: 0.77

W: 6.20

X: 1.55

Y: 10.0

Z: 7.75

A: 6.97

B: 11.6

C: 3.87

D: 1.55

E: 3.10

F: 0.0

G: 3.87

H: 0.0

I: 6.20

J: 2.32

K: 1.55

L: 5.42

M: 13.9

N: 0.77

O: 1.55

P: 7.75

Q: 5.42

R: 0.0

S: 0.77

T: 2.32

U: 1.55

V: 4.65

W: 8.52

X: 0.0

Y: 0.0

Z: 6.20

A: 2.34

B: 3.12

C: 9.37

D: 0.78

E: 0.0

F: 7.81

G: 7.03

H: 7.03

I: 2.34

J: 0.78

K: 3.90

L: 0.0

M: 0.78

N: 0.0

O: 9.37

P: 1.56

Q: 1.56

R: 3.12

S: 14.8

T: 1.56

U: 2.34

V: 7.03

W: 10.1

X: 0.0

Y: 0.0

Z: 3.12

A: 7.81

B: 6.25

C: 0.0

D: 0.0

E: 9.37

F: 8.59

G: 11.7

H: 2.34

I: 2.34

J: 3.12

K: 0.0

L: 3.12

M: 0.0

N: 7.03

O: 0.0

P: 0.78

Q: 2.34

R: 14.0

S: 3.12

T: 3.90

U: 6.25

V: 3.12

W: 0.78

X: 0.78

Y: 1.56

Z: 1.56

**Frequencies 3**

Key Length: 5

A: 6.48

B: 3.70

C: 0.0

D: 6.48

E: 5.55

F: 11.1

G: 1.85

H: 0.0

I: 1.85

J: 0.0

K: 2.77

L: 0.0

M: 5.55

N: 1.85

O: 1.85

P: 3.70

Q: 12.0

R: 0.92

S: 2.77

T: 8.33

U: 9.25

V: 0.0

W: 0.92

X: 5.55

Y: 0.92

Z: 6.48

A: 3.70

B: 4.62

C: 8.33

D: 0.0

E: 0.0

F: 2.77

G: 1.85

H: 6.48

I: 7.40

J: 0.0

K: 0.0

L: 6.48

M: 7.40

N: 9.25

O: 0.0

P: 0.92

Q: 3.70

R: 0.0

S: 2.77

T: 0.0

U: 8.33

V: 0.92

W: 0.92

X: 5.55

Y: 15.7

Z: 2.77

A: 6.54

B: 0.0

C: 0.0

D: 2.80

E: 0.93

F: 10.2

G: 6.54

H: 4.67

I: 0.0

J: 5.60

K: 15.8

L: 9.34

M: 0.93

N: 0.0

O: 4.67

P: 0.0

Q: 0.0

R: 0.93

S: 2.80

T: 0.93

U: 2.80

V: 2.80

W: 13.0

X: 2.80

Y: 1.86

Z: 3.73

A: 11.2

B: 5.60

C: 0.0

D: 1.86

E: 3.73

F: 0.0

G: 1.86

H: 0.0

I: 9.34

J: 2.80

K: 0.0

L: 1.86

M: 10.2

N: 2.80

O: 3.73

P: 7.47

Q: 6.54

R: 0.0

S: 2.80

T: 7.47

U: 3.73

V: 4.67

W: 5.60

X: 1.86

Y: 0.0

Z: 4.67

A: 0.93

B: 0.0

C: 5.60

D: 1.86

E: 0.0

F: 3.73

G: 16.8

H: 3.73

I: 1.86

J: 3.73

K: 8.41

L: 0.0

M: 0.93

N: 2.80

O: 5.60

P: 9.34

Q: 3.73

R: 1.86

S: 0.0

T: 4.67

U: 9.34

V: 8.41

W: 0.0

X: 1.86

Y: 4.67

Z: 0.0

**Frequencies 4**

Key Length: 7

A: 6.93

B: 1.98

C: 0.0

D: 1.98

E: 11.8

F: 5.94

G: 6.93

H: 0.0

I: 4.95

J: 0.0

K: 1.98

L: 0.0

M: 5.94

N: 3.96

O: 0.99

P: 4.95

Q: 18.8

R: 1.98

S: 0.0

T: 7.92

U: 3.96

V: 0.0

W: 0.99

X: 4.95

Y: 0.0

Z: 2.97

A: 1.98

B: 0.0

C: 3.96

D: 0.0

E: 11.8

F: 0.99

G: 0.99

H: 0.99

I: 13.8

J: 0.99

K: 1.98

L: 3.96

M: 3.96

N: 0.0

O: 1.98

P: 5.94

Q: 1.98

R: 4.95

S: 7.92

T: 0.99

U: 0.0

V: 3.96

W: 4.95

X: 14.8

Y: 6.93

Z: 0.0

A: 0.0

B: 1.0

C: 3.0

D: 1.0

E: 8.0

F: 5.0

G: 1.0

H: 0.0

I: 7.0

J: 7.0

K: 9.0

L: 1.0

M: 1.0

N: 5.0

O: 0.0

P: 4.0

Q: 0.0

R: 5.0

S: 3.0

T: 1.0

U: 7.0

V: 10.0

W: 6.0

X: 1.0

Y: 10.0

Z: 4.0

A: 9.0

B: 1.0

C: 0.0

D: 4.0

E: 5.0

F: 8.0

G: 6.0

H: 1.0

I: 2.0

J: 0.0

K: 2.0

L: 0.0

M: 5.0

N: 1.0

O: 2.0

P: 3.0

Q: 17.0

R: 4.0

S: 3.0

T: 9.0

U: 8.0

V: 0.0

W: 1.0

X: 4.0

Y: 0.0

Z: 5.0

A: 6.0

B: 2.0

C: 0.0

D: 2.0

E: 12.0

F: 1.0

G: 3.0

H: 6.0

I: 5.0

J: 0.0

K: 1.0

L: 4.0

M: 0.0

N: 7.0

O: 13.0

P: 1.0

Q: 0.0

R: 8.0

S: 11.0

T: 8.0

U: 3.0

V: 1.0

W: 5.0

X: 0.0

Y: 1.0

Z: 0.0

A: 5.0

B: 8.0

C: 5.0

D: 1.0

E: 0.0

F: 0.0

G: 4.0

H: 0.0

I: 6.0

J: 2.0

K: 1.0

L: 4.0

M: 15.0

N: 4.0

O: 2.0

P: 9.0

Q: 3.0

R: 1.0

S: 2.0

T: 6.0

U: 2.0

V: 6.0

W: 7.0

X: 0.0

Y: 0.0

Z: 7.0

A: 0.0

B: 4.0

C: 0.0

D: 7.0

E: 3.0

F: 0.0

G: 3.0

H: 12.0

I: 1.0

J: 2.0

K: 6.0

L: 5.0

M: 0.0

N: 2.0

O: 3.0

P: 2.0

Q: 7.0

R: 9.0

S: 1.0

T: 0.0

U: 7.0

V: 5.0

W: 11.0

X: 6.0

Y: 0.0

Z: 4.0