1 Useful Information

Indices of letters:

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
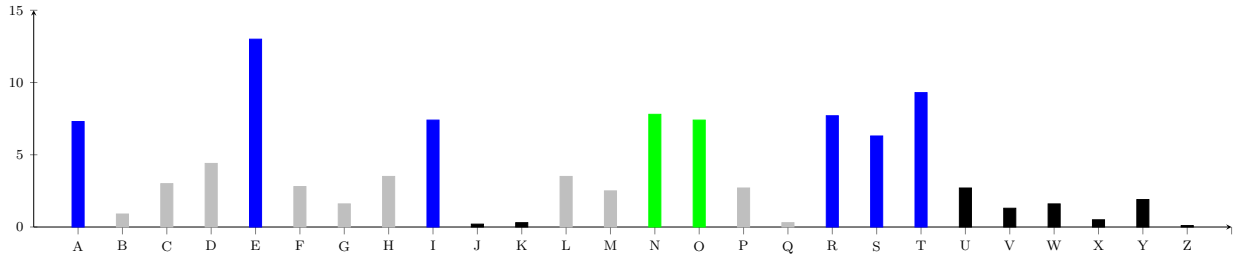
2 Tasks

Solve the following tasks

1. An additive cipher maps plaintext G to ciphertext X. What is the encryption key? Which decryption key will allow to reconstruct the plaintext?

2. We know that a ciphertext was produced by a shift cipher, and that the encryption key was 17. What is the decryption key?

3. We know that the plaintext word THE is encrypted by an affine cipher into trigam NHM. What is the encryption key? What is the decryption key?

4. A ciphertext obtained by an affine cipher with key $(3, 17)$. Which key will you use to decrypt it?

5. What is the I.C. of the ciphertext EPYEPOPDZSZUFPO?

6. Encrypt the word MORNING using a shift cipher with key 11.

7. Encrypt the word SYMBOL using an affine cipher with key $(3, 2)$.

8. Encrypt the word PARADOX using a Vigenère cipher with key YESTERDAY.

Find the difference in keys

Given two ciphertexts Y : M BQDEAZ ITA ZQHQD YMPQ M YUEFMWQ ZQHQD FDUQP MZKFTUZS ZQI and Y' : GZVMI AMJH TZNOZMYVT GDQZ AJM OJYVT CJKZ AJM OJHJMMJR, which are two different messages encrypted by shift cipher using different keys z and z'. Find $z - z' \pmod{26}$.
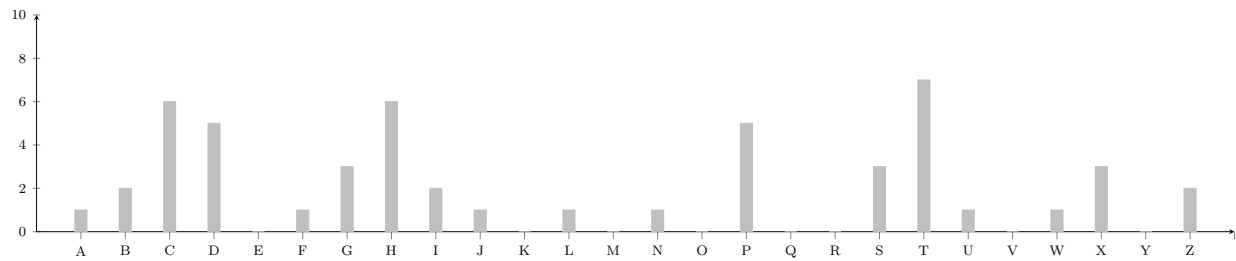
Decrypt the messages

1. ESPCP TD L ETOP TY ESP LQQLTCD ZQ XPY HSTNS ELVPY LE ESP QWZZO WPLOD ZY EZ QZCEFYP
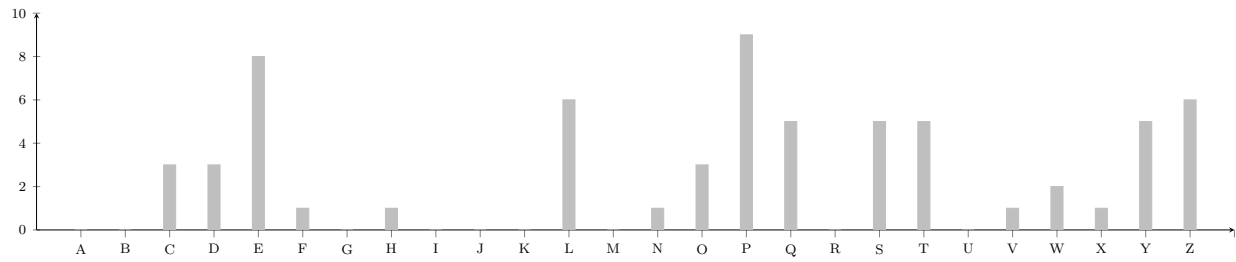
2. SV SQ VNY OWMMWR KWRTYL WD EHH MYR NWK EMWRI QW MERU MSHHSWRQ WD DEOYQ VNYLY QNWAHT
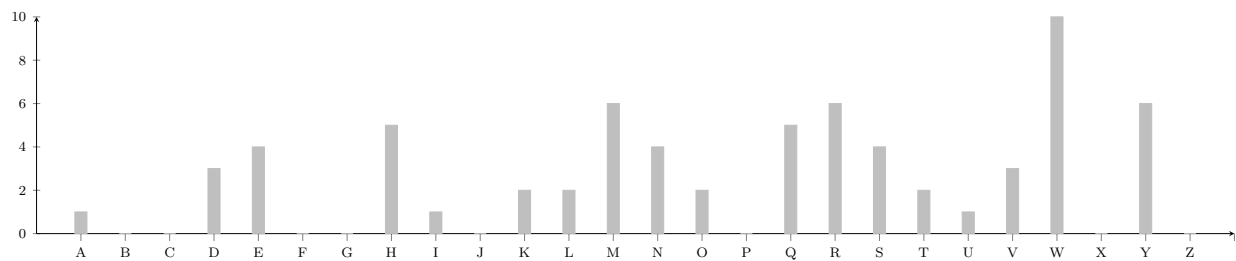
3. BDSTGC WXHIDGN AXZT P STPU BPC PCHLTGH FJTHIXDCH CD DCT PHZTS

4. JDI HVANGNKFKJS JDGJ EI MGS PGKF KT G EAVJDS UGQCI KC TAJ CQPPKUKITJ RQCJKPKUGJKAT PAV AQV VIPQCKTW JA CQHHAVJ KJ