Course: "Fundamentals of Cryptography".
Laboratory work No. 8. RSA.

Objective of the work: to obtain practical skills in working with the RSA algorithm.
Task: to perform encoding and decoding operations in the RSA algorithm.

Task 1.
1.1. Encrypt the word Bratislava using the RSA algorithm and random numbers p = 5 and q = 7. Perform encryption using a private key.
1.2. Using the received cryptogram and the public key, decode the cryptotext.
Task 2.
2.1. Encrypt the word BANK using the RSA algorithm and random numbers p = 9 and q =11. Perform encryption using a public key.
2.2. Using the received cryptogram and the private key, decode the cryptotext.

When performing tasks 1 and 2, write out all the stages of the calculations in detail, indicating the cryptosystem module and the Euler function.
When performing modulo operations, it is allowed to use online calculators.

Task 3.
3.1. Write out all possible public keys when using the numbers p = 7 and q = 11 as random numbers for the RSA algorithm.

3.2. Write out all possible public keys when using the numbers p = 9 and q = 11 as random numbers for the RSA algorithm.