Exp 2a :RSA Algorithm

Code:

//RSA Algorithm

#include <stdio.h>

#include <math.h>

int gcd(int a, int h) {

int temp;

while (1) {

temp = a % h;

if (temp == 0)

return h;

a = h;

h = temp;

}

}

int main() {

int p = 3;

int q = 7;

printf("\nValue of p = %d",p);

printf("\nValue of q = %d",q);

int n = p \* q;

printf("\nValue of n = %d",n);

int e = 2;

int phi = (p - 1) \* (q - 1);

while (e < phi) {

if (gcd(e, phi) == 1)

break;

else

e++;

}

int k = 2;

double d = (1 + (k \* phi)) / (double)e;

int msg = 9;

printf("\n\nMessage data = %d", msg);

double c = pow(msg, e);

c = fmod(c, n);

printf("\nEncrypted data = %.0lf", c);

double m = pow(c, d);

m = fmod(m, n);

printf("\nOriginal Message Sent = %.0lf", m);

return 0;

}

Output:

