RC4-2. i) I want you to write a program that has three inputs: the integer \( n \), the integer \( l \) and the array of bits which is the key. The output of the program should be an array of bits which is the keystream (it should have length \( n \times l \)). I want your program to include two subroutines.

Subroutine A should take as input two integers \( x \) and \( y \). Its output is an array of length \( x \) giving the binary representation of \( y \). So SubroutineA(8,185) should output \([1,0,1,1,1,0,0,1]\)

Subroutine B should take an array of bits and output the integer whose binary representation is the array. So SubroutineB([1,0,1,1,0,0,1]) should output 5 and SubroutineB([1,0,1]) should output 5.

ii) Have your program check your work from RC4-1 by taking the inputs: \( n =3, l = 11,\) key=[1,0,1,1,0,0,0,0,1,0,1,1].

iii) Have your program find the keystream for the inputs:
\( n = 8, l = 28,\)
\[\text{key=[1,0,1,1,0,1,0,0,1,1,1,0,1,1,1,1,0,0,1,0,1,0,0,0,0,1,0,1,0,1,1,1,1,1,1,1,1,0,0,1,0,1,0,1,0,1,1,1,0,1,0,1,1,1,0,1,0,1,1,1,0,1,1,1,1,0,1,1,0,0,0,0,0,1,0,0,1,1,1,1,1,0,1,1,1,0,1,1,1,0,1,1,1,1,0,1,1,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,