Task 1:

Task 1 asks to encrypt the given text with the given keyword. Using a for loop with the length of the plain text as limit, I cycled through the keyword to create the key for encryption. Another for loop is used to encrypt the plain text. Inside this second for loop, every iteration will take the sum of the character indices of the plain text and corresponding letter in the key to mod 26. This gives the offset value to get the corresponding encrypted character. Then, 65 is added to this value to get the corresponding ASCII value for that character. An if statement is used to check if the initial value is lowercase or uppercase. If the initial plain text is in lower case, 32 is added to get the correct ASCII value for the lowercase character.

Task 2:

Task 2 asks to decrypt the given ciphered text with the given keyword. I used the same generating key function from task 1 to create the key using the keyword. To decrypt, a similar procedure is taken with slight modification. Instead of summing the character indices of the plain text and corresponding letter in the key, the difference between the character indices of the ciphered text and the corresponding letter in the key is used to mod 26. The same check is used to check if the ciphered text is in lowercase to do the proper adjustment.

Task 3 & 4:

I could not figure out how to crack the cipher.