

Problem 3:

The cipher in problem 2 is stronger than Caesar Cipher because in Caesar Cipher if we find out the pattern (that is the shift key) we can apply that key to the entire cipher text and get the plain text or vice versa and get the cipher text. Whereas for the cipher in problem 2 one letter is shifted by a different value and the rest of the text is shifted by a different value. So we end up finding more different shift values as compared to 1 in the Caesar Cipher where the shift values are different with the key given and we also have different shift values due to different previous character in the message passed.

Problem 5:

The cipher in problem 5 is the strongest of all the cipher since we have a lot of different shift values. First the length of the key can vary and we will need to find that to decrypt the cipher text. Even after finding the length we need to find the shift values for each of the value in the key and they can be different. As in our example for the key 'cdgd' first we would have to find the length 4 of the key. Then even after finding the value of the key we had 4 different shift keys inside the key as 'cdgd' which makes it stronger. Then after that length we will have to find the shift values for the rest of the message (for a message longer than the key) which shifts according to the previous character in the message.

In the order of decreasing strength of the ciphertext

Problem 4 > Problem 2 > Caesar Cipher

Problem 4 being the strongest, problem 2 being less stronger than problem 2 but still stronger than Caesar Cipher.