Q9. Analyze the following recursive functions and identify the type of recursion used in each.

Justify your answer by explaining why it fits a specific category.

• Function A: factorial(n)

• Function B: is_even(n) and is_odd(n)

• Function C: A function to reverse a string where the recursive call is the last step.

Ans:

Function A is a Direct and Non tail it is direct because it directly call itself and it does not require any other function to call it and it is a non tail recursion because computation is done as it is multiplied by n so it is a both direct and non tail recursion.

Function B is a Indirect recursion because even calls odd and odd calls even they dont call themselves directly so it is a Indirect recursion.

Function C is a tail recursion because it calls itself directly without any computation is done so we can say that it is a both Direct and Tail recursion.