# Assignment On Algorithm Analysis and Array

## Subject: CSW2(CSE3141)
## Session: March 2023 to Aug 2023
## Branch: CSE&CSIT
## Section : All

**Q1.** Write a program to check whether a number is prime or not. Calculate its time complexity with proper explanation.

**Q2.** Write a program to find the binary equivalent of a decimal number. Calculate its time complexity.

**Q3.** Write a program to find the reverse of a number and find its time complexity.

**Q4.** Write a program to search an element using binary search and calculate its time complexity.

**Q5.** Given an array, write a program to rotate its element K numbers of times. Explain its time complexity.

**Q6.** Given an array of positive and negative integers, write a program to find a contiguous subarray whose sum of elements is maximum.

**Q7.** Given an array, write a program to arrange its elements in waveform such that odd elements are lesser than its neighboring even elements.

**Q8.** Given an array of size N, containing elements from 0 to N-1. All values from 0 to N-1 are present in array and if they are not there than -1 is there to take place. Write a program to arrange values of the array so that value i is stored at arr[i].

**Q9.** Given an unsorted array, find the smallest positive number missing in the array.

**Q10.** Given a sorted array, rearrange it in maximum-minimum form.

**Q11.** Given an array you need to find the maximum sum of arr[i]*(i+1) for all elements such that you are allowed to rotate the array.

**Q12.** Given an array arr[], find the maximum distance of index j and I, such that arr[j]¿arr[I].

**Q13.** Given two arrays in increasing order you need to find the maximum sum by choosing a few consecutive elements from one array and then a few elements from another array. The element switching can happen at transition points only when the element value is the same in both arrays.

**Q14.** Write a recursive algorithm to solve the Tower of Hanoi problem.

**Q15.** Write a recursive function to find the GCD of two numbers. Write the recurrence of the function and solve it for a solution.

**Q16.** Write a program to find all permutations of an integer list recursively.

**Q17.** Write a recursive function to search an element using binary search. Analyze its time complexity.