

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 $\text{arr}[i] \cdot (i+1)$ for all elements such that you are allowed to rotate the array.
- Q12.** Given an array $\text{arr}[]$, find the maximum distance of index j and I , such that $\text{arr}[j] \neq \text{arr}[I]$.
- 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.