Department of Computer Science and Engineering,
Anna University, Chennai- 600025
CS6104 – Data Structures and Algorithms (R 2018)
Practical
August – December 2023
Year/Sem/Batch : II/III/ P

Exercise: 02	Review of C Programming	07 – Sep- 2023

Observation (5 Marks)

1. Given an array of n integers, write an algorithm and pseudo code to find the smallest element.
2. Write an algorithm and pseudo code to find the median of n numbers.
3. Consider the following pseudo code for the bubble sort algorithm.

```
For i=n-1 to 1
For j=0 to i-1
    If(a[j]>a[j+1])
        Swap(a[j],a[j+1])
    Endif
Endfor
Endfor
```

   a. How many passes through the outer loop will occur?
      (i) for an array of 5 elements?
      (ii) for an array of 10 elements

Execution (15 Marks)

4. Write a program that fills an array A of size 5 filled with random integers in the range 1 to 100 and prints it out (for testing purposes). Write programs that then after creating such a random array, do each of the following:
   (a) Calculate the sum of the elements of A and print it out.
   (b) Count the number of elements in A whose contents are less than 10.
   (c) Create a new array B of size 5 such that for all
   B[i] (0<=i<=19), B[i] = A[0] + A[1] + … + A[i]

5. Write a C program to
   Print all the unique elements in the given array
   Count the total number of duplicate elements in the given array
   Delete all duplicate elements in the given array
   Count the frequency of each element in the given array

4	3	1	2	4	1	5	6	7	8	9	2