VIT

Vellore Institute of Technology

School of Information Technology and Engineering

Winter Semester 2022-2023

Continuous Assessment Test – I

Programme Name & Branch: B.Tech. Information Technology

Course Name & code: Structured and object oriented programming BCSE102L

Class Number (s): VL2022230506396 & VL2022230506394 **Slot:** A2

Exam Duration: 90 mins **Maximum Marks:** 50

Answer all the questions (5 x 10=50)

1. Write a C program to accept an integer as input and find the sum of odd and even digits separately. If the sum of odd and even digits is same, display the message "Matching". Otherwise, display the message "Not matching". For example, suppose the user has entered a number 1223. The sum of odd digits is 4 (3+1) and the sum of even digits is 4 (2+2).

2. Find the sum of the following series by accepting the value of 'n' from the user.

$$1+\frac{1}{2!}+\frac{1}{3!}+\frac{1}{4!}+\ldots\frac{1}{n!}$$

3. Write a program to implement lift functions of an apartment. The user should be able to enter a destination floor between 0 and 5. The program has to iterate until user enters valid floor number. Say the user has entered a number 3. The program output should be:

Sample Input:

We have 5 floors, you can move from 0 to 5
Enter the floor number where you want to go :- (0 to 5)
Press -1 if you reached your destination
3
Sample output:

You are now on 3rd floor
Enter the floor number where you want to go :- (0 to 5)
Press -1 if you reached your destination
-1
Hope you reached your destination
Visit Again

4. (a) Code a C program which checks whether the entered substring is present in the input string.

Sample output: [6 M]

Enter a string: hello
Enter search substring: world
SEARCH UNSUCCESSFUL!

Enter a string: helloworld
Enter search substring: ld
SEARCH SUCCESSFUL!

(b) Write the output for the following C program. [4 M]

```
#include<stdio.h>
void main()
{
int a[5]={5,1,15,20,25};
int i,j,k=1,m;
i=++a[1];
j=a[1]++;
m=a[i++];
printf("\n%d%d%d",i,j,m);
printf("\n%d",a[1]);
}
```

5. Create a C program that accepts a matrix and determines whether it is sparse by passing an array to function.

Note:
In sparse matrix, among the total no. of elements in the matrix, more than half of the elements are zero.

3 5 0
0 0 8
0 0 0