

University of Information Technology & Sciences (UITS)

Faculty of Science and Engineering

Department of CSE

Program: B.Sc. in CSE

Supplementary Examination, Autumn 2023

Course Title: Structured Programming Language

Course Code: CSE 111

Marks: 50

Time: 03 (Three) Hours

(Answer all questions)

1. a) You have to build a system that will keep track of the records of all students of a University in the Department of Computer Science and Engineering. For each student, you have to store Roll, Name, Phone number, CGPA, and Address. Create a structure for this purpose. [05]
- b) Suppose Array1={1,2,3,4,5} and Array2={98,97,96,95,94} are taken as input. Now Develop a program that prints Array3={99,99,99,99,99} as output using the given inputs. [05]
2. a) Analyze the following program and explain the outputs of the program. [05]

```
int main()
{
    int sum = 1;
    int k=2;
    for(int i=1;i<=5;i++)
    {
        sum=sum*k;
        k++;
    }
    printf("k is assigned to %ld\n", k);
    printf("value of sum is %ld", sum);
    return 0;
}
```
- b) Construct a recursion function to calculate the summation of n numbers. [05]
3. a) "Call by Value value passes the value of the variable" - justify the statement by describing call by value and call reference with examples. [05]
- b) Write a C program that can print the output of the following series $1*2 + 2*3 + 3*4 + \dots + N*N+1$ using for loop. [05]

4. a) Define pointer and give an example of a pointer. [02]
- b) Differentiate between while and for loop with examples. [03]
- c) Write a C program to design a simple grading system that outputs "A+" when mark is equal to 80, "B+" when mark is equal to 40, and "F" when mark is equal to 0 using switch-case. [05]
5. a) Define user-defined function. Write a C program that takes three numbers as input and returns the maximum number. [05]
- b) Suppose there is one character array named string1. Write a C program to check if the character array contains the character "a". [05]