(T)(J-24) Roll No. .....

PAPER ID—16150

B.Tech. (Computer Science and Engineering) (Cyber Security)

EXAMINATION, 2024

(First Semester)

PROGRAMMING FOR PROBLEM SOLVING USING C

Code : CSE-101

Time : 3 Hours *Maximum Marks : 70*

Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

Note : This question paper consists of two Units. Unit I comprises seven questions of short answer type. All questions are compulsory.

Each question carries 2 marks. Unit II comprises six long answer type questions out of attempt any *Four* questions. Each question carries 14 marks. Do not write anything on the question paper.

Unit I

(Short Answer Type Questions)

1. (a) Write a program using one printf statement to print the pattern of Asterisks as shown below : **2**

```
*
* *
* * *
* * * *
```

(b) What would be the value of c after execution of the following statements ? **2**

```
int x, y = 10;
char z = 'a';
x = y + z;
```

(c) Given a number, write a program using while loop to reverse the digits of the number : 2

12345

Should be written as

54321

(d) Is it advisable to use goto statements in a C program ? Justify your answer. 2

(e) Define a one-dimensional, 12-element integer array called *arr*. Assign the values 1, 4, 7, 10, 13, 16, 19, 22, 25, 28, 31, 34 to the array element in C. 2

(f) Differentiate between user-defined function and built-in function in C. 2

(g) Differentiate between structure and union. 2

Unit II

(Long Answer Type Questions)

2. (a) Write a program that reads two integers from the keyboard, divide them, and then prints the result upto two decimal points. 7

(b) Discuss the various storage class specifiers in C. 7

3. (a) Differentiate between the uses of break and continue using suitable examples. 7

(b) Discuss the role of pre-processors in C with example. 7

4. (a) Given are two one-dimensional arrays A and B which are sorted in ascending order. Write a program to merge them into a single sorted array C that contains every item from arrays A and B, in ascending order. 8

(b) Write a program to calculate factorial of a given number n using recursion. 6

5. (a) Write a function that returns the number of times the character is found in a string. The function has two parameters. The first parameter is a pointer to a string. The second parameter is the character to be counted. 6

(b) List and discuss four string handling function in C. 8

6. Write a program using pointers to read in an array of integers and print its elements in reverse order. 14

7. (a) With a suitable example, explain the concept of pass by reference. 4

(b) Using the prototypes explain the functionality provided by the following functions : 10

(i) rewind()

(ii) fseek()

(iii) ftell()

(iv) fread()

(v) fwrite().