(T) Roll No. .....

PAPER ID—16150

B.Tech. EXAMINATION, 2024

(First Semester)

COMPUTER SCIENCE AND ENGINEERING

(Cyber Security)

Code : CSE-101

Programming for Problem Solving Using C

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 : Attempt *Five* questions in all, selecting *four* questions from Unit II. Q. No. 1 (Unit I) is compulsory. All questions carry equal marks.

Unit I

1. (a) What is the purpose of adding comments in a program ?

   (b) Explain the difference between prefix and postfix increment operators with an example.

   (c) What is a preprocessor ? Name various preprocessors in C.

   (d) What is a string ? What are its features ?

   (e) How are arrays passed to functions in C ?

   (f) How can you access the value of a variable using a pointer ?

   (g) What is the purpose of the struct keyword ? **2×7=14**

Unit II

2. (a) What are data types ? Explain the various data types used in C language. Mention the size of each. 7

(b) What is a flow chart ? Explain the various symbols and their functions used in a flowchart. 7

3. (a) Compare the working of for, while and do-while loops along with their syntax. 7

(b) What is the use of break and continue statements ? Write a program in C to print all odd and even numbers between 1 and 100. 7

4. (a) What is an array ? How 1D integer array is represented in memory ? Explain with the help of suitable example, the declaration and initializing the array elements. 7

(b) What is the output of strcmp() function ? Write a C program to reverse a string without using inbuilt string functions. 7

5. (a) What is Function ? What are its advantages ? Explain the various parameter passing techniques using suitable examples. 7

(b) What is the difference between a recursive and an iterative function ? Write a C program to find the factorial of a number. 7

6. (a) What functions are used to implement dynamic memory allocation in C ? Explain each one with their usage. 7

(b) Explain the concept of an array of structures with an example program. How is an array of structures different from a regular array ? 7

7. (a) What are the file I/O functions in C ? Give a brief note about the task performed by each function. 7

(b) Write a C program to copy the contents of one file to another. 7