B. Tech.
(SEM II) THEORY EXAMINATION 2022-23
PROGRAMMING FOR PROBLEM SOLVING

Time: 3 Hours *Total Marks: 100*

Note: Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. **Attempt *all* questions in brief.** **2 x 10 = 20**

(a) Explain pseudo codewith example.

(b) Discuss function prototype with example.

(c) List the difference between application software and system software?

(d) Give two differences between while and do-while statements.

(e) Explain different types of memory?

(f) Give the meaning of declaration : int * ptr;

(g) Define token in 'C' language?

(h) Distinguish between an append mode and write mode in files.

(i) Write the use of putchar() and getchar().

(j) List the differences between text files and binary files.

SECTION B

2. **Attempt any *three* of the following:** **10 x 3= 30**

(a) Write a C program to get triangle of numbers as a result:
1
1 2
1 2 3
1 2 3 4

(b) What is dynamic memory allocation? Write and explain the different dynamic memory allocation functions in C.

(c) Describe Compiler, interpreter and assembler? Write the names of compiler that are used in c programming.

(d) Write a C program to create structure with five student's details and display the same.

(e) Explain how 'switch' statement is used in the programs instead of 'if-else' statements with a suitable example program.

SECTION C

3. **Attempt any *one* part of the following:** **10x1=10**

(a) What are basic data types available in C? Write the significance of each data type.

(b) What is recursion? Write a program in C to find out factorial of a given number using recursion.

4.   **Attempt any *one* part of the following:**   **10x1=10**

(a)   What do you mean by entry and exit control loop? Explain with example.

(b)   Write a C program to check whether a given number is prime or not.

5.   **Attempt any *one* part of the following:**   **10x1=10**

(a)   Describe the differentstorage classes available in CLanguage with examples.

(b)   Write a program to sort N elements of an array.

6.   **Attempt any *one* part of the following:**   **10x1=10**

(a)   What is an array? How a single dimension and two dimension arrays are declared
        and initialized?
(b)   What is a pointer? Explain how the pointer variable declared and initialized.

7.   **Attempt any *one* part of the following:**   **10x1=10**

(a)   Define a string. Explain any 4 string library functions with syntax & example.

(b)   Write a program to find area of a circle using macros.