I B. Tech II Semester Supplementary Examinations, January/February - 2023
PROGRAMMING FOR PROBLEM SOLVING USING C
(Common to CE, Agri E)

Time: 3 hours　　　　　　　　　　　　　　　　　　　　　　　　Max. Marks: 70

Answer any FIVE Questions ONE Question from Each Unit
All Questions Carry Equal Marks
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UNIT - I

1. a) Explain the step-by-step procedure for creating and executing a C program. [7M]

   b) List out the Precedence and Associativity rules of various operators in C. [7M]
   Explain the output of the following C code snippet.
   int a = 9, b = 4, c=3, d=2, result;
   　result= a+a*-b/c%d+c*d;
   　printf("result = %d", result);

(OR)

2. a) Explain about Scope and Longevity of variables in C programming. [7M]

   b) What is meant by Type conversion in C? What are its types? Explain with [7M]
   appropriate code snippets.

UNIT - II

3. a) Explain about various Conditional control statements in C programming. [7M]

   b) Explain all Bitwise operators supported by C with examples. [7M]

(OR)

4. a) Develop a C program to display the Floyd's triangle. [7M]
   Hint: Floyd's triangle of 5 rows is given below.
   1
   2 3
   4 5 6
   7 8 9 10
   11 12 13 14 15

   b) Explain the differences between while and do-while statements in C with a [7M]
   suitable example.

UNIT - III

5. a) What are multidimensional arrays in C? Where are multidimensional arrays used? [7M]
   How does memory allocation take place for a multidimensional array in C.

   b) Write a program in C to separate the individual characters from a string. [7M]

(OR)

6. a) Explain the differences between Structures and Unions in C language. And [7M]
   demonstrate the memory allocation strategy for Unions and Structures in C
   programming.

   b) Develop a C program to find the sum of the diagonal elements of an NXN matrix [7M]
   where N is taken as input.

UNIT - IV

7. a) What are Pointer variables in C? How are pointer variables different from memory variables? What are the different operations that can be performed on pointer variables? [10M]

    b) Explain the importance of Scale factor in Pointer arithmetic with an example program. [4M]

(OR)

8. a) List and explain various dynamic memory management functions in C programming. [7M]

    b) Why do we use preprocessor commands in C? Explain its working and its importance. [7M]

UNIT - V

9. a) Explain the following [7M]
    - i) Call by Value Versus Call by Reference
    - ii) Actual and Formal parameters

    b) Develop a C program to generate n^{th} Fibonacci term using recursive functions. [7M]

(OR)

10. a) Define File. What are different types of Files in C programming? Explain. [7M]

    b) Write a C program to write Even, Odd and Prime numbers from 1 to 1000 to separate files. [7M]

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