Code No: **R201110**

(R20)

(SET - 1)

I B. Tech I Semester Supplementary Examinations, July/August-2023
PROGRAMMING FOR PROBLEM SOLVING USING C

(Common to EEE, ME, ECE, CSE, CSE-CS&T, EIE, IT, ECT, Auto Eng, Min Eng, Pet Eng, CSE-AI&ML, CSE-AI, CSE-DS, CSE-AI&DS, CSE-CS, CSE-IOT &CS Incl BCT, CSE-CS & BS, CSE-IOT, Food Eng, AI&DS)

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) How computer represents numbers and characters in memory? Can real numbers be represented precisely in computer memory? Give examples. [7M]

    b) Write about Octal and Hexadecimal number systems. And explain the procedure for converting a Hexadecimal number to Octal and vice versa. [7M]

(OR)

2. a) Which storage class in C language will allow a variable to have life time till end of the program? Explain with program. [7M]

    b) What is the main purpose of Command line arguments in C? Develop a C program to demonstrate the usage of command line arguments. [7M]

UNIT-II

3. a) Explain the concept of Bitwise Shift operators in C programming. What is the output of the following C program? [7M]

```
#include <stdio.h>
 int main( )
  {
    int a = 20,x = 0,y=0;
    x = a << 2;
    y = a >> 2;
    printf("x=%d, y=%d", x,y );
    return 0;
  }
```

    b) Explain various conditional control statements supported by C language with neat flowcharts. [7M]

(OR)

4. a) Demonstrate the execution behavior of Event and Counter-controlled loops. [7M]
    b) Write a C program to display the following pattern on console for the input 5. [7M]
```
*
*  *
*  *  *
*  *  *  *
*  *  *  *  *
```

UNIT-III

5. a) Explain the memory allocation strategies for one and two-dimensional arrays in C programming with neat diagrams. [7M]

    b) Write a C program to sort the names of 50 employees in lexicographical order. [7M]

1 of 2

|"|'|||||"|"'|||'|

(OR)

6. a) Write the syntax to define Union? Mention the properties of Union data type and brief its limitations. [7M]

   b) Develop a C program to illustrate the creation and usage of enumeration data type. [7M]

UNIT-IV

7. a) Define Pointer. Discuss its features and uses in C programming. [7M]

   b) [7M]
```
#include<stdio.h>
int main()
{
   int i;
   char ch[] = {'x', 'y', 'z'};
   char *ptr, *str1;
   ptr = ch;
   str1 = ch;
   i = (*ptr-- + ++*str1) - 10;
   printf("%d", i);
   return 0;
}
```

(OR)

8. a) How does pointer arithmetic work? Which arithmetic operation is not allowed on pointers in C? [7M]

   b) Write a C program to dynamically create memory for accessing the names, marks and grades of 'N' students. [7M]

UNIT-V

9. a) Explain the following [7M]
   i) Function prototype   ii) Actual and Formal parameters

   b) Develop a C program to add two complex numbers using Structures and User defined functions. [7M]

(OR)

10. a) Discuss various modes of operating text and binary files in C. [7M]

    b) Explain about formatted and unformatted I/O functions provided by C to manipulate files. [7M]

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