END SEMESTER EXAMINATION - NOVEMBER 2024
SEMESTER 1 : INTEGRATED M.Sc. PROGRAMME COMPUTER SCIENCE - DATA SCIENCE
COURSE : **21UP1CRMCP1 : PROGRAMMING IN C LANGUAGE**
(For Regular 2024 Admission and Improvement / Supplementary 2023/2022/2021 Admissions)

Time : Three Hours   Max. Weightage   : 30

PART A
Answer any 8

1. If person1 and person2 are structure variables of the same structure, write a statement to copy one structure variable to another.

2. Find error, if any, in the following statements:
   ```
   FILE fptr;
   fptr = fopen ("data", "a+");
   ```

3. Discuss the significance of function call.

4. Predict the output of the following code segment when executed:
   ```
   int m = - 14, n = 3 ;
   printf ("%d \n", m/n * 10) ;
   ```

5. List any two desirable qualities of a flowchart.

6. Write the declaration statement to declare a variable for storing the marks of 10 students.

7. Define preprocessor directive in C.

8. Specify any two arithmetic operations that can be performed on pointers.

9. Every program statement in C must end with _____.

10. If an array is declared as `char name[20]`, calculate the total memory required (in bytes) for the array.

(1 x 8 = 8 Weight)

PART B
Answer any 6

11. Write a sample code that prints the following pattern:
    ```
    1
    12
    123
    1234
    ```

12. Discuss briefly the need of `typedef` statement with an example.

13. Consider the following declarations:
    ```
    int a = 10, b = 10;
    int *aptr = &a, *bptr = &b;
    ```
    Find the value of the expression `++(*bptr) - *aptr`, after the above statements are compiled.

14. Predict the value of 'x' after execution of the following statements:
    ```
    int x, y = 10;
    char z = 'a';
    x = y + z;
    ```

15. Discuss the purpose of the functions `feof()` and `ferror()`.

16. Discuss how values can be assigned to structure elements statically.

17. A function to divide two floating point numbers is given below:
```
divide ( float x, float y)
{
    return (x / y);
}
```
What will be the value of the function calls: `divide (10, 2)` and `divide (9,2)`.

18. Differentiate between `scanf()` and `fscanf()` functions.

(2 x 6 = 12 Weight)

PART C
Answer any 2

19. Write a sample program that illustrates the behaviour of a static variable.

20. Write a C program that sorts a list of integers using selection sort technique.

21. Explain the process of program execution under Linux environment.

22. Write a program to copy the contents of one file to another.

(5 x 2 = 10 Weight)