R-19

PGDCA 1ˢᵗ Semester

PGDCA

Paper–PGD-1002 : Computer Programming Using C/C++

Time Allowed : Three Hours]   **[Maximum Marks : 80**

Note : Attempt **five** questions in all, including Q. No. **9** in Section E, which is compulsory and taking **one** question each from Section A to Section D.

SECTION–A

1. (a) Name and explain various steps that are followed in order to solve a problem using a programming language.

    (b) Explain different type of operators used in 'C' language with their precedence and associativity.   8,8

2. (a) Discuss the difference between while, do-while and for loops with the help of syntax and suitable examples. What is the utility of break and continue statements in these looping statements ?

    (b) Write a 'C' program for designing a simple calculator (addition, multiplication, division) using switchcase and break statements.

                                                                              8,8

SECTION–B

3. (a) What is a pointer variable ? How can we access the elements of a one-dimensional array using a pointer variable ? Explain by taking an example.

    (b) What do you mean by call by value and call by reference parameter passing mechanism in 'C' ? Explain the difference by writing a function in 'C' to swap two numbers.   8,8

4. (a) Define an array in 'C'. Write a 'C' program to multiply two matrices of order MxM.

    (b) What is a string in 'C' ? Name and explain any TWO built-in string functions in 'C'. Write a function in 'C' to find the length of a string without using any built-in function.   8,8

SECTION–C

5. (a) Discuss the usability of macro expansions in 'C' and write a macro in 'C' to calculate the square of a number.

    (b) How does 'C' handle file related operations ? Explain with examples.   8,8

6. (a) Define the structure and union in 'C'. List the advantages and disadvantages of each.

    (b) Differentiate between array of structures and nested structures. How are both of these declared and initialized ? Explain by taking an appropriate example.   8,8

SECTION-D

7. (a) What is Object Oriented Programming (OOP) ? Highlight the salient features of OOP ? What is the difference between an object and a class ? Explain with an exmple.

   (b) Differenitate between basic data types and derived data types. Give basic C++ syntax to facilitate explicit type conversion for user defined data types.   8,8

8. (a) What are the different forms of inheritance supported in C++ ? Discuss on the visibility of the base class members in privately and publicly inherited classes.

   (b) What is the objective of constructor and destructor ? Write a program in C++ to overload constructor.   8,8

SECTION-E
(Compulsory Question)

9. (a) What is a pseudo code ? How is it different from an algorithm ?

   (b) What is the difference between logical NOT and bitwise NOT operators in 'C' ?

   (c) Give the structure of C++ program.

   (d) Explain comma and conditional operators in 'C' language with suitable examples.

   (e) Explain pointer arithmetic with examples.

   (f) What is the role of Function Prototype ? Explain with some example.

   (g) What is dynamic binding in C++ ?

   (h) What is message passing in C++ ?   8×2=16