Progressive Education Society's
Modern College of Arts, Science & Commerce Ganeshkhind, Pune – 16
End Semester Examination: Jan.2023
Faculty: Science and Technology

Program: B.C.A.   Semester: I
Program (Specific): BCA Science   Course Type: CC
Class: F.Y.BCA (Science)   Marks: 70
Name of the Course: Problem Solving and C Programming   Time: 3Hr
Course Code: 22-BCA-112
Paper: -

Instructions to the candidate:

1) *There are 4 sections in the question paper. Write each section on separate page.*
2) *All Sections are compulsory.*
3) *Figures to the right indicate full marks.*
4) *Draw a well labelled diagram wherever necessary.*

SECTION: A

Q1) a) (5 Multiple Choice Question)   **[5x1=5]**

i) C is _____ type of programming language.

a) Object Oriented   b) Procedural   c) Bit level language   d) Functional

ii) Loops in C Language are implemented using _____ .

a) While Block   b) For Block   c) Do While Block   d) All the above

iii) First step in the process of problem solving is to _____.

 a)   Design a solutions b) define a problem c) practicing the solution   d) organizing the data

iv) Comment in 'C' language is to be closed in _____.

a) ##   b) //   c) <! !>   d) /* */

v) _____ is a unary operator.

a) <   b) &&   c) **,** (comma)   d) sizeof ()

b) Answer the following questions in one or two sentences.   **[5x1=5]**

 1) Define Constant.
 2) What is recursion?
 3) Define formal parameter
 4) What is an Array?

5) List the basic symbols of flowchart.

SECTION: B

Q2 Answer the following questions (any 5) [5x3=15]

1) State the characteristics of an algorithm.
2) Explain the structure of c program.
3) State the difference between keyword and identifier.
4) State and explain the types of operators.
5) Write syntax and use of putchar () and getchar ().
6) Explain the various loop structures used in C.

SECTION: C

Q3) Answer the following questions (any 5) [5x4=20]

1) What is a function? Write a only function to check given number is even or odd ?
2) Write an algorithm and draw flowchart for swapping of two numbers using the third variable.
3) Predict the output:
   ```c
   #include<stdio.h>
   int main()
   {
      int i=1;
      while(i<10)
      {
              printf("%d",i);
              i++;
      }
   }
   ```
4) State the use of switch statements. Give its syntax.
5) Explain the methods for parameters passing to functions.
6) What are Storage Classes? Explain any two types.
7) What are the advantages and disadvantages of using arrays?

SECTION: D

Q4) Answer the following questions (any 5) [5x5=25]

1) Explain the basic data types in C.
2) State the difference between 'while loop' and 'do-while loop'.
3) Explain the nested if-else structure with example.
4) Write a program to accept and display n numbers using the array.
5) What is the recursion? Explain with suitable example.

6) Write a program to check whether a given number is perfect or not using a function.
7) Predict the output:

```
main()
{
        int x, y, z;
        x=y=z=1;
        z= ++ x && y || ++ z ;
        printf("%d %d %d", x , y , z);
}
```