Programming Fundamentals   `   Course Code: CC-112-3
Total Marks: 35 marks   **Section - A**   Time: 90 Minutes

Attempt the following questions.   (5 x 3 = 15 marks)

1- Discuss the six phases that are followed by a C/C++ program in order to be executed.

2- Discuss and differentiate the various generations of programming languages.

3- Create a flowchart diagram for a program that asks the user for a number, calculates and displays its factorial.

4- Guess the output of the following code:

```c
#include <stdio.h>
int main()
{
    int x,y:
    x=1; y=x++;
    printf("%d %d ",x,y);
    y=++x;
    printf("%d %d ",x,y);
    return 0;
}
```

5- Guess the output of the following code:

```c
#include <stdio.h>
int main()
{
    int x;
    x = 10;

    if(x > 10)
            x -= 10;
    else if(x >= 0)
            x += 00;
    else if(x)
            x += 10;
    else
            x -= 10;

    printf("%d\n",x);
    return 0;
}
```

Section - B

Solve the following problems.   (4 x 5 = 20 marks)

1. Write a C program that takes a character as input and displays whether the character is a vowel or a consonant.

2. Write a C program that has initialized values in two int variables. Swap the values in the variables.

3. Write a C program that displays the sum of first n integers. Value of n should be taken as input from user.

   Hint: Sum of first n integers is $\sum_{k=1}^{n} k = \dfrac{n(n+1)}{2}$

4. Write a C program that takes three integer values from user. Calculate and display the average.