Instructions to candidate:

Answer any four full questions out of six.
All questions carry equal marks.
Programs should be written in C++.

TIME: 3 HOURS

QUESTION ONE

a) Discuss in detail the issues needed to resolve the software crisis? [8]

b) What are the advantages of scope resolution operator? Show with a programming example how you will access a variable using this operator? [7]

c) What are the basic concepts of OOP'S? Illustrate with the figures wherever necessary? [10]

QUESTION TWO

a) Bring out the pros and cons of three types of programming structures? Write the types of statements fall under these structures with their syntax? [10]

b) Define structure? Show in how many ways the structure can be declared? Illustrate with a program how the nested structure can be used? [10]

c) What will be the output of the of the following fragments:
```
(i)     void main()
           { int a = 300,b,c;
        if(a>=400)
              b=300;
              c=200;
```

```
                cout<<"b="<<b<<"c="<<c<<endl;
        }
(ii)    main()
        { int i=4, z=12;
            if(i=5 || z=50)
                cout<<"\n you are smart";
        else
                cout<<"\n you are useless";
        }
(iii)   main()
            { int I, j;
            for(I=1; I<=2; I++)
                for(j=1; j<=2; j++)
            { if (I==j)
                continue
            cout<<"I="<<I<<"j="<<j;
            }
        }
```

(iv)   Write a program to produce the following output using a loop structure:

```
A  B  C  D  E  F  G  F  E  D  C  B  A
A  B  C  D  E  F     F  E  D  C  B  A
A  B  C  D  E           E  D  C  B  A
A  B  C  D                 D  C  B  A
A  B  C                       C  B  A
A  B                             B  A
A                                   A
```
[5]

Note: Don't worry about the syntax errors.

QUESTION THREE

a)   How does a C++ structure differ from a C++ class?   [5]

b)   What is a friend function? What are the merits and demerits of using friend functions?   [5]

c)   Define a class to represent a bank account. Include the following members:

Data members:

1. Name of the depositor

2. Account number

3. Type of account

4. Balance amount in the account

2

Member functions:

1. To assign initial values
2. To deposit an amount
3. To withdraw an amount after checking the balance
4. To display name and balance

Write a main program to test the program. [15]

QUESTION FOUR

a) Define an array? Name the three types of arrays and also write their general syntax of representations? Give at least two applications for each? What happens if an array's initializer has more values than the size of the array? [10]

b) Write a menu driven program to arrange the given numbers in ascending and descending order? The user should have a choice to select any one from the menu. [15]

QUESTION FIVE

a) What is the significance of empty parentheses () in a function declaration? How many values can be returned from a function? [5]

b) Discuss the impact of object oriented concepts over procedural languages? [10]

c) Why do we need the preprocessor directive # include<iostream.h>? [5]

d) What are the differences between passing a parameter by value and by reference? [5]

QUESTION SIX

a) How many times is the loop body executed in a do loop? Write a do loop that displays the numbers from 100 to 110?

[10]

b) How do you invoke a constructor function? List some special Properties of the constructor function?

[5]

c) Write a program to generate all the prime numbers between 1 to 100?

[10]

END OF QUESTION PAPER

GOOD LUCK!