COMP 3 – 2 (RC)

S.E. (Comp) (Semester – III) Examination, November/December 2009
BASICS OF C++

Duration : 3 Hours | Total Marks : 100

Instructions: *1) Answer **five** questions by selecting atleast **one** from **each** Module.*
2) Write the code using C++ language.
*3) Make appropriate assumptions **wherever** necessary.*

MODULE – I

1. a) List and explain the 5 skills a Software developer should possess besides the ability to write Software. **5**

   b) List the basic data types of C++ along with their bytes of memory occupied and their minimal precision. **4**

   c) Write a C++ program that asks the user to input a character using the ASCII character set as a guide, state whether the users character is a digit (0 to 9), a letter (a to z or A to Z) or a symbol. **7**

   d) How does a constant defined by "const" differ from constant defined by preprocessor statement #define ? **4**

2. a) Write a C++ program for computing factorial of a number using while loop. **5**

   b) Describe the basic steps in designing and building Software. **5**

   c) List the different operators and their precedence in C++. **5**

   d) Explain the concept of object oriented. Use suitable examples. **5**

MODULE – II

3. a) Explain the address operator '& and how it can be used with pointers. Use example if required. **3**

   b) Differentiate between call by value and call by reference. **6**

   c) Write a C++ program that creates an array of size 'n', and perform insertion, deletion and searching operations on that array. **7**

   d) Which are three basic statements required for every function in C++ ? Use example and explain. **4**

P.T.O.

4. a) What is a file ? What are the steps involved in manipulating a file in a C++ program ? 4

b) Explain the basic format of a function in C++. Illustrate with an example. 4

c) Write a program to swap two numbers using pointers and functions. 6

d) List and explain various character string functions used in C++. 4

e) Mention the uses of pointers in C++. 2

MODULE – III

5. a) Write a program to multiply matrices of integer and floating point type using function overloading. 6

b) Write a program to subtract two complex numbers. 5

c) What is output of following program ? 5

```
# include <iostream.h>
int count = 0 ;
class sample
{
    public : sample () ;
    ~sample () {cont <<"destroying object" << endl ;}
};
Sample : : Sample ()
        {count ++ ; cout << "object no" <<count<<"is created"
                                    << endl;}
sample a ;
void funct ()
```

```
{
    sample p ;
    cout <<"inside function" << endl ;}
int main ()
{ cout <<"entry"<<endl;
  sample a,b; funct (); return 0;}
```

d) Explain how symbolic constants can be created using enumerated data type with example. 4

6. a) Discuss memory requirements for classes, objects, data member, member function, static and non static data members, with examples. 6

b) Write a C++ program using classes to calculate the pay structure for various employees in a Software Company. Provide facility to print salary slip of particular employee. 8

c) Explain with suitable examples different class relationship. 6

MODULE – IV

7. a) Differentiate between errors and exceptions with suitable examples. 4

b) What is multiple inheritance ? Write program to illustrate the same. 8

c) How is dynamic binding achieved ? State rules for defining virtual function. 8

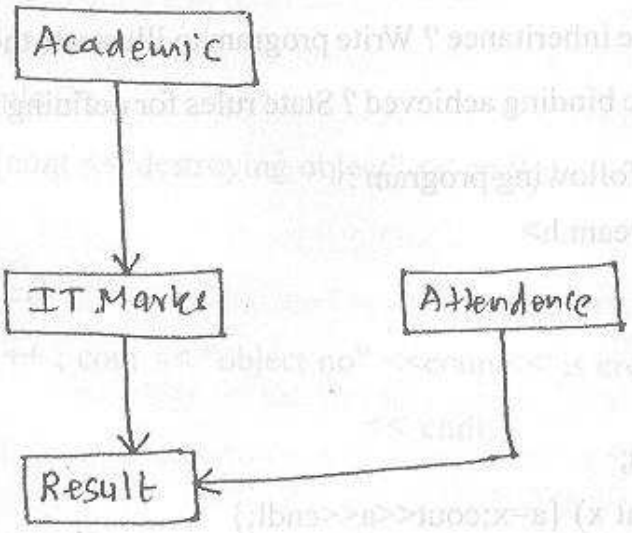
8. a) Give output of following program : 4

```
# include <iostream.h>
Class A
{
   int a;
  public : A ();
           A(int x) {a=x;cout<<a<<endl;}
};
class B
```

```
{
    int b, c;
    public : B () {}
            B(int y, int z) {b=z; c=y; cout<<b<<c<<endl;}
};
class C : public B, public A
{
    int s;
   public : C(int a, int b, int c) : A(b), B(a, c)
            {  s = c+2; cout<<s<<endl;}
};
int main ()
{
   C c1(10, 20, 30);
   return 0;
}
```

b) Explain different types of polymorphism. 3

c) Implement following inheritance and provide suitable facilities. 8



d) Write program to input numbers in the array and handle exception if user tries to access array out of bound. 5