USN ⬚⬚⬚⬚⬚⬚⬚⬚⬚⬚ **10CS36**

Third Semester B.E. Degree Examination, June/July 2019
Object Oriented Programming with C++

Time: 3 hrs.   Max. Marks:100

Note: *Answer FIVE full questions, selecting*
atleast TWO questions from each part.

PART – A

1   a.   Define the terms encapsulation, polymorphism and inheritance.   **(06 Marks)**
    b.   What is function overloading? Write a C++ program to overload the function abs(p) to return the absolute value of integer, long and double.   **(10 Marks)**
    c.   What is inline function? Give the disadvantages of inline functions.   **(04 Marks)**

2   a.   What is class? Explain its general syntax.   **(08 Marks)**
    b.   Explain the parameterized constructor in C++ with an example.   **(06 Marks)**
    c.   Write a C++ program that makes use of static member variable to keep track of the number of objects of a particular class type that are in existence.   **(06 Marks)**

3   a.   What is friend function? Explain when friend functions are useful.   **(05 Marks)**
    b.   Explain how to create generic function.   **(05 Marks)**
    c.   What is operator overloading? Write a C++ program that users friend functions to overload the prefix versions of ++ and ─ ─ operators relative to the loc class.   **(10 Marks)**

4   a.   What do you mean by inheritance in C++? Explain the general form of defining the derived class.   **(06 Marks)**
    b.   Explain how to access base class protected members by derived class with an example.
                                                                                          (06 Marks)
    c.   What is multiple inheritance? Write a C++ program to achieve multiple inheritance.
                                                                                          (08 Marks)

PART – B

5   a.   Explain when base class and derived class constructors and destructors called with example.
                                                                                          (06 Marks)
    b.   Explain the mechanism of passing parameters to base class constructors.   **(04 Marks)**
    c.   What is virtual base class? Why virtual base classes are needed? Explain with an example.
                                                                                          (10 Marks)

6   a.   Define the following :
         i) Virtual functions   ii) Pure virtual functions   iii) Abstract classes.   **(06 Marks)**
    b.   Explain how the virtual attribute is inherited with an example.   **(08 Marks)**
    c.   Differentiate between early binding and late binding.   **(06 Marks)**

7   a.   What are steam classes? Explain C++'s predefined streams.   **(06 Marks)**
    b.   Explain the following functions :
         i) width( )   ii) precision( )   iii) fill( )   iv) unsetf( ).   **(08 Marks)**
    c.   What are manipulators? Explain any 5 manipulators.   **(06 Marks)**

8   a.   What is exception handling? Explain try, throw and catch constructs in C++.   **(08 Marks)**
    b.   Explain three types of STL containers.   **(06 Marks)**
    c.   What is map? Explain any 5 map member functions.   **(06 Marks)**

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