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10CS36

Third Semester B.E. Degree Examination, Dec.2016/Jan.2017
Object Oriented Programming with C++

Time: 3 hrs.

Max. Marks:100

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

PART – A

1   a. Describe the following characteristics of object oriented programming:
        i) Encapsulation   ii) Polymorphism   iii) Inheritance.   **(06 Marks)**
    b. Explain function overloading and its benefits. Write a C++ program to define three overloaded functions area( ), to find area of rectangle, area of rectangular box and area of circle.   **(08 Marks)**
    c. How can you make member functions inline? Give an example.   **(06 Marks)**

2   a. What are constructors and destructors? What are their characteristics? Explain different types of constructors.   **(12 Marks)**
    b. Explain static data members and static member functions with an example.   **(08 Marks)**

3   a. Discuss function template and its usage. Write a C++ program to create a template function to swap two integers, two floats and two characters.   **(10 Marks)**
    b. What is operator overloading? Write a C++ program to demonstrate overloading of operator + and −. Use friend function for + and member function for − stating the difference.   **(10 Marks)**

4   a. What is inheritance? Explain the advantages of inheritance.   **(06 Marks)**
    b. Explain single and multilevel inheritance with examples.   **(10 Marks)**
    c. What is the effect of using the protected access specifier on the visibility of a base class member?   **(04 Marks)**

PART – B

5   a. In what order are the class constructor and destructor invoked when a derived class object is created? Explain with an example.   **(08 Marks)**
    b. Write a short note on virtual base class.   **(06 Marks)**
    c. Write a C++ program and explain how to show passing parameters to base class constructors.   **(06 Marks)**

6   a. Write a short note on virtual function with example.   **(06 Marks)**
    b. What is pure virtual function and abstract class? Write a C++ program to implement an abstract class.   **(10 Marks)**
    c. Differentiate between early and late binding.   **(04 Marks)**

7   a. Write a note on file open modes.   **(05 Marks)**
    b. What are the manipulators? Discuss 4 predefined manipulators supplied by C++ I/O streams.   **(05 Marks)**
    c. What are iostreams? Explain the stream class hierarchy with a neat diagram.   **(10 Marks)**

8   a. What do you mean by exception handling? Discuss try-catch mechanism. Write a C++ program to show the implementation of exception handling.   **(10 Marks)**
    b. Why do we use standard template library? What are the components of STL? Discuss each component briefly with examples.   **(10 Marks)**

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