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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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