USN | | | | | | | | | | |

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)**

* * * * *