USN ☐☐☐☐☐☐☐☐☐☐

Third Semester B.E. Degree Examination, June/July 2017
Object Oriented Programming with C++

Time: 3 hrs.   Max. Marks:100

Note: 1. *Answer FIVE full questions, selecting at least TWO questions from each part.*
2. *Programs must be neatly documented.*

PART – A

1 a. What is reference variable? Explain with an example and write a program to swap values of two variables using reference variable. **(05 Marks)**
   b. Describe function overloading and write a program using overloaded function area to find area of circle, triangle and rectangle. **(05 Marks)**
   c. What is an inline function? What is the advantage of having a function inline? Write a C++ program to find maximum of three integers using inline function maximum ( ). **(05 Marks)**
   d. Illustrate with an examples, different data types supported by C++ language. **(05 Marks)**

2 a. What is data hiding? Write a C++ program to create a class complex, to add given two complex numbers and use following member functions, readData( ). dispData( ) and computeData( ). **(05 Marks)**
   b. What are constructor and destructor? Can you overload constructor and destructor? Justify. **(08 Marks)**
   c. What are static members of a class? Illustrate with an example and write a program to count the number of object created. **(07 Marks)**

3 a. What is friend function? Explain. Write a C++ program using Bridge friend function small( ) to find smallest of two numbers. **(06 Marks)**
   b. What is generic function and template instantiation? Write a C++ program using generic function swap( ) to exchange values of two integers, doubles and characters, and prints the values before and after swapping. **(07 Marks)**
   c. What is operator overloading? Why it is required? Write a C++ program to overload the operators '+' to add two complex numbers, '<<' to display complex numbers and ">>" to read complex numbers, using friend functions. **(07 Marks)**

4 a. What is inheritance? Explain the differences between the access specifier flags / visibility modes. **(06 Marks)**
   b. Explain single inheritance and multiple inheritance with the suitable diagram and syntaxes. **(08 Marks)**
   c. Write a C++ program to create a class called CSE (Name and USN) and using inheritance crate derived classes, UG (fee, stipend) and PG (fee, stipend) from it. **(06 Marks)**

PART – B

5 a. Explain constructor and destructor functions and how to pass arguments to constructors along with multilevel inheritance. **(10 Marks)**
   b. What is virtual base class? Explain with the suitable diagram and program. **(10 Marks)**

6 a. What is runtime polymorphism? How to achieve it? With the suitable example program explain the same. **(10 Marks)**
   b. Explain pure virtual function and abstract class with the suitable program. **(10 Marks)**

7 a. Explain input output manipulator with the suitable example. **(10 Marks)**
   b. Explain file operations with examples. **(10 Marks)**

8 a. What is an exception? Explain exception handling options with an example. **(10 Marks)**
   b. What is STL? What STL consists of? Explain in detail vector class. **(10 Marks)**

* * * * *