RAJARATA UNIVERSITY OF SRI LANKA
FACULTY OF APPLIED SCIENCES

B.Sc. (General) Degree in Information and Communication Technology
FirstYear - Semester II Examination – November/December 2016

ICT1306 – OBJECT ORIENTED PROGRAMMING

Time: Two (02) hours

Answer all questions

1. a) Give the object oriented terminology for each of the following object oriented features and provide an example code that illustrates the feature using any programming language you are familiar with. (5 x 4 marks)
   i. A blueprint for an object which defines all the data items contained in the object and the operations that are permitted on the data
   ii. A representation of something within the domain that the program models which contains values of data and which implements operations on that data
   iii. An operation which will manipulate the data contained in an object
   iv. A variable which holds data that describes a characteristic of an individual object
   v. A variable which holds data that is relevant to all the objects created from the same template.

   b) Using an object oriented language with which you are familiar, give an example of operator overloading. (5 marks)

(25 marks)

2. a) What are the four (04) basic features of object oriented programming languages? Define each of them. (20 marks)

   b) What is the difference between static binding and dynamic binding? (5 marks)

   (25 marks)

3. a) What is the difference between method overloading and method overriding? Give an example of how each feature is realized in an object oriented programming language with which you are familiar. (10 marks)

   b) What is the difference between friend function and friend class? (5 marks)

   c) What is the advantage of a constant member function? Give an example using any object oriented language you are familiar with. (5 marks)

   d) What is an abstract class? Give an example using an object oriented language you are familiar with. (5 marks)

   (25 marks)

4. a) What is a design pattern and what is the importance? (4 marks)

   b) Briefly describe the following design patterns: (9 marks)

      i. Observation

      ii. Factory

      iii. Singleton

   c) How do we represent the visibility of class members as private, public and protected in an UML class diagram? (3 marks)

   d) Discuss the role of the following UML diagrams in the development of an object oriented system. (9 marks)

      i. Use Case diagram

      ii. Class diagram

      iii. Activity diagram

END.