THE OPEN UNIVERSITY OF SRI LANKA
B.Sc. DEGREE PROGRAMME : LEVEL 04
DEPARTMENT OF COMPUTER SCIENCE
No Book Test 1 – 2017/2018
CSU4301: OBJECT ORIENTED PROGRAMMING
DURATION:One Hour (1 Hours)

Date: 23.06.2018	Time :10.30 am -11.30 am

Answer All Questions.

1)
   a) i) What is Object Oriented Programming (OOP)?
        ii) How does it differ from Procedure Oriented Programming? Explain briefly by using three (3) facts.

   b) Explain the process of converting a Java stand-alone program (source-code) into the machine language.

   c) Fill in the blanks in each of the following statements by using words given inside the brackets underneath. (write only the suitable word for the blank in your answer sheet)

(Aggregation, Generalization, Association, constructors, Specialization, super, this, overridden, overloading, public, private, protected)

     I. An .... relationship is described as "whole/part" relationship between two classes.
    II. Java classes have ....that is used to initialize the properties with its default values or customized values.
   III. .... facilitates definition of new Classes from existing Classes on a sound conceptual basis.
   IV. .... is a mechanism for combining common characteristics from two or more Classes and combining them into a generalized Super-class.
   V. The Keyword .... allows a method to refer the hidden variables and .... methods of the parent class
   VI. If a 'member' is defined as......... ..., then it is accessible only for the Class, which it is defined. The access specifier .... allows the Class itself, Sub Classes and all Classes in the same package to access the members.
   VII. Sub Classes inherit Super Class members declared as ....and.....................

d) State whether the following Java statements are valid or invalid. Justify your answer and rewrite the invalid statements correctly.

    i.   **int @Month ;**

    ii.   **final int PI 3.14159 ;**

    iii.   **Public Static main(String[] args) {}**

    iv.   The following statement is valid static method declaration

                public void add (int a,b){

                return a+b; }

    v.   **private int x,y;**

2.)

  a) Briefly explain the following terms in Object Oriented Programming using examples.

    i.   Class and Object   iii.   Inheritance

    ii.   Abstraction   iv.   Polymorphism

  b) Define a **JAVA Class** to represent a **Lecturer** that indicates the following data members and methods

    i.   Two **private** Data members-- Lecturer number, Basic Salary

    ii.   Methods

          - A parameterized constructor to initialize the data members of the class.

          - Selector and modifier methods for **Basic Salary** member variable.

          - A method called **print()** to print the Lecturer details. (Number and Basic Salary)

    iii.   Write a main Class called **TestLecturer** to test the Class defined (Lecturer class) in part(b).

          - Create a Lecturer with following details –

                Number – 00234,   Basic Salary–35000.00

          - Display the Lecturer Details.

  c) Define a Class called **Permanent Lecturer** which is derived from the **Lecturer class** in (Q2-b) and it has the following functionalities.

    i.   A Permanent Lecturer has a special attribute called **academic allowance rate**, which is a percentage from Basic Salary. (E.g. 10%)

    ii.   A parameterized constructor to initialize the data members (Lecturer number, basic salary, academic allowance rate) of the class.

    iii.   A method called **calAcadamicAllowance()** to compute the academic allowance.

    iv.   A method called **netSalary()** to calculate the net salary by adding academic allowance to the basic salary.

    v.   Override the **print()** method to print the Lecturer Number, Basic salary, academic allowance rate , academic allowance amount and net salary.