EASTERN UNIVERSITY, SRI LANKA
DEPARTMENT OF MATHEMATICS
SECOND YEAR EXAMINATION IN SCIENCE (2010/2011)
FIRST SEMESTER (April , 2013)

OC 206 – INTRODUCTION TO OBJECT ORIENTED PROGRAMMING (JAVA)

(REPEAT)

Answer <u>all</u> questions   Time: Two hours

Q1)

a) State clearly what is meant by Object Oriented Programming.
b) List the principle features of the Object Oriented methodology.
c) Describe the access specifiers in Java programming language.
d) List down five keywords that are used in java programming language.
e) Briefly describe the difference between method Overloading and Overriding in Java.

Q2)

a) Define the following terms with regard to object oriented methodology:
   (i)   Class;
   (ii) Object;
   (iii) Method;
   (iv) Constructor.

b) Define a class in java with following description:

Private Members

A data member Flight number of type integer

A data member Destination of type string

A data member Distance of type float

A data member Fuel of type float

A member function CALFUEL() to calculate the value of Fuel as per the following criteria

Distance	Fuel
<=1000	500
more than 1000 and <=2000	1100
more than 2000	2200

Public Members

A function FEEDINFO( ) to allow user to enter values for Flight Number, Destination, Distance & call function CALFUEL( ) to calculate the quantity of Fuel.

A function SHOWINFO( ) to allow user to view the content of all the data members

Q3) Write Java programming for the following questions.

a) To print the following patterns using the *for loop*:

```
    *                    *
   **                  ***
  ***                *****
 ****              *******
*****            *********
    (i)                  (ii)
```

b) To find the maximum number in an array int*A* of n integers.

c) To compute the *circumference* and *area* of a circle whose radius is *r*.

d) To swap first and last element of an integer 1-d array.

e) To find the sum and average of one dimensional integer array.

Q4)

a) Describe briefly what is meant by *inheritance* in Object Oriented paradigm.

b) Describe the each type of inheritance using diagrammatic representation and general syntax representation.

c) Define a class *Publication* which has attributes title and price, functions: getData() and print().

Derive the following sub-classes from the Publication class:

a sub-class *Book* which has an attribute: accession number and functions: getData() and print( ).

a sub-class *Magazine* which has an attribute: volume number and functions: getData and print( ).

With the *Magazine* sub-class as base, derive another sub-class *Journal* which has attribute: Journal Name and functions: getData() and print().

In *main*( ) create an object for the class *Journal*. Invoke the getData() and print functions for this object.