EASTERN UNIVERSITY, SRI LANKA

DEPARTMENT OF MATHEMATICS

EXTERNAL DEGREE EXAMINATION IN SCIENCE

SECOND YEAR EXAMINATION IN SCIENCE (2008/2009)

FIRST SEMESTER (Repeat)

XTMT 206 – INTRODUCTION TO OBJECT ORIENTED PROGRAMMING (JAVA)

swer all questions — Time: Two hours

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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.

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

b) Define a class student in Java with the following specifications:

Private members of class student

admno	integer
sname	20 character
eng, math, science	float
total	float
ctotal()	a function to calculate eng + math + science with float return type.

Public member function of class student

Takedata()	Function to accept values for admno, sname, eng, science and Invoke the function ctotal() to calculate total.
Showdata()	Function to display all the data members on the screen.

Q3) Write Java programming for the following questions.

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

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

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

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

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

d) To multiply two matrices A of order p x q and B of order q x r storing the result in another matrix C of order p x r.

e) To reverse the elements of an integer 1-D 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() print().

Derive the following sub-classes from the Publication class:

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

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

With these two sub-classes as bases, 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 pri functions for this object.