KENYA METHODIST UNIVERSITY
FIRST TRIMESTER 2007 EXAMINATION

FACULTY : SCIENCES
DEPARTMENT : MATHEMATICS AND COMPUTER SCIENCE
COURSE CODE : COMP 211
COURSE TITLE : OBJECT ORIENTED PROGRAMMING
TIME : 3 HRS

Instructions: Attempt Question 1 in **Section A** and any other two questions.

SECTION A

QUESTION 1 (20 Mks)

a) In relation to Java, give the meaning of the following terms as used to describe object oriented programming languages. (4Mks)

i. Algorithm
ii. Pseudocode
iii. Object Oriented Design
iv. Declaration

b) Differentiate between an argument and a parameter. (2 Mks)

c) Differentiate between an application and an applet. (2 Mks)

d) Describe the components of message passing as used in Java. (3 Mks)

e) What is the use of the keyword 'main' in Java applications. (1 Mk)

f) Write a program that calculates the product of three integers and displays the results. (8 Mks)

Question Two: (20 Mks).

a) Study the following code and answer the questions that follow.

```
1  // WelcomeApplet.Java
2  // A first applet in Java.
3
4
5  import Java.awt.Graphics;
6
7
8  import Javax.swing.JApplet;
9
10  public class WelcomeApplet extends JApplet {
11
12
13     public void paint( Graphics g )
14     {
15
16        super.paint( g );
17
18
19        g.drawString( "Welcome to Java Programming!", 25, 25 );
```

```
20
21     } // end method paint
22
23  } // end class WelcomeApplet
```

i. What does the statement in line 5 and 8 mean? (3Mks)
ii. What is the effect of using the keyword 'extends' in line 10. (3Mks)
iii. Describe variable 'g' in line 13. (3Mks)
iv. What is the use of the keyword 'super' in line 16. (3Mks)

b) Clearly define what a selection structure is and differentiate between the **if** and **if/else** selection structure (4 mks)

c) Describe the **for** repetition structure and outline its general format. (4 Mks)

Question Three: (20 Mks)

a) Outline and describe the general format for a method definition. (6 Mks)

b) Explain three motivations for modularizing a program with methods. (6 Mks)

c) Differentiate between the Set and Get methods and explain their importance in Java. (3 Mks)

d) What is the use of the following keywords in Java (2 Mks)

ii. 'final'
iii. 'this'

e) What is the use of the **finalizer** method in Java (2 Mks)

f) What does the public **static** method **gc** in Java suggest (1 Mk)

Question four: (20 Mks)

a) How does polymorphism promote extensibility. (3Mks)

b) Give three examples to explain the concept of polymorphism. (3Mks)

c) Explain how multiple inheritance may be implemented in Java (2Mks)

d) Giving examples, differentiate between a direct and indirect superclass. (3 Mks)

e) In relation to Java explain the concept " protected members" and list the clients with access to the protected members. (5Mks)

f) Give two uses of the keyword 'super' in inheritance. (2Mks)

g) Differentiate between abstract and concrete classes. (2Mks)