



MURANGA UNIVERSITY COLLEGE

(A constituent College of Jomo Kenyatta University of Agriculture & Technology)

MAIN CAMPUS

ORDINARY UNIVERSITY EXAMINATIONS

2014/2015 ACADEMIC YEAR

SECOND YEAR SECOND SEMESTER

**FOR THE DEGREE
OF
BACHELOR OF BUSINESS INFORMATION TECHNOLOGY (BBIT)**

COURSE CODE: ICS2201

COURSE TITLE: OBJECT ORIENTED PROGRAMMING II

DATE: 20TH APRIL 2015

TIME: 2 HOURS

INSTRUCTIONS TO CANDIDATES

Question ONE (1) is compulsory
Answer THREE (3) questions

MRUC observes ZERO tolerance to examination irregularities

This Paper Consists of 2 Printed Pages. Please Turn Over. ►

Question one

a) Differentiate between the following pairs of terms:

- | | |
|------------------------------------|--------|
| i. Method and message | 2marks |
| ii. Early binding and late binding | 2marks |
| iii. Instance and instance method | 2marks |

b) Write a java program which can be used to input two integers separately on message boxes, the program adds the two integers and the answer is displayed on a message box. 8marks

c) Explain the difference between the outputs from program statements in I and II below. 4marks

I. String s;
System.out.println("s = " + s);

II. String s = new String();
System.out.println("s = " + s);

di) What data types are valid for array indexes? [2marks]

ii) What's wrong with this definition:
Arrays arrays = new Arrays(); [2marks]

e) Describe what is meant by the term method overriding and comment on the importance of method signatures in determining which method is overridden. Illustrate method overriding with code written in java [5marks]

fi) Define the term package as used in java. [1mark]

ii) State 2 packages in java programming language. [2marks]

Question two

a) Some object oriented programming languages have methods which are known as destructors whilst others implement garbage collection. Compare and contrast these approaches. 8marks

b) By use of the *if elseif* control structure, develop a java program which outputs the correct grade of the marks from the following grading system; A=80 to 100, B=60 to 79, C=50 to 59, D=40 to 49, E=below 40. [8marks]

c) Describe 4 features of java programming. [4 marks]

Question three

a) Explain how overloading and overriding contribute to the implementation of polymorphism in object oriented languages. [8marks]

b) Using the array data structure, write a java program that allows a user to input elements, and then the program computes the sum and the average. [8marks]

c) Write the steps followed while creating a comboBox form in java programming. [4marks]

Question four

a) Use the java code below to answer the questions that follow.

```
class atomClass
{
private:
int protons;
int neutrons;
int electrons;
protected:
static int electronCharge;
public:
atomClass();
atomClass(int p, int n, int e);
void setProtons(int p);
int getNeutrons();
};
```

i) If we wished to publically inherit from atom Class, explain which members would be visible in the derived class, and state their designation. [5 marks]

ii) Explain the purpose of a copy constructor, and propose how one might be implemented for atomClass, assuming that we had a full suite of accessor functions. [5 marks]

b) Describe the concept of casting as used in java programming. [4marks]

c) Develop a java program which is able to output the minimum value between two integers. The program should make use of a method which should be defined and then called. [6marks]