

# Mount Kenya



# University

**UNIVERSITY EXAMINATIONS 2011/2012**  
**SCHOOL OF PURE AND APPLIED SCIENCES**  
**DEPARTMENT OF INFORMATION TECHNOLOGY**  
**EXAMINATION FOR BACHELOR OF BUSINESS INFORMATION TECHNOLOGY**  
**VIRTUAL CAMPUS**

**BIT 3201: OBJECT ORIENTED PROGRAMMING**

**MAY 2012**

**Instructions:**

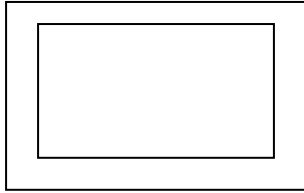
Answer question **ONE** and any other **TWO** questions

**Time: 2Hours**

**Question 1: Compulsory (30 marks)**

- (a) Explain the following concepts of object oriented programming
- i. State (2marks)
  - ii. Behavior (2marks)
  - iii. Object (2marks)
  - iv. Class (2marks)
  - v. Message passing (2marks)
- (b) Explain the role of the following JDK tools. Use example to demonstrate how they are used in command line environment.
- i. Java Compiler (3marks)
  - ii. Java interpreter (3marks)
  - iii. Java Debugger (3marks)
- (c) Using *for loop*, write the program for the following output: (5marks)
- 0      2      4      6      8      10

- (d) Write a Java applet program to generate two nested shapes as given below: The inner shape is filled while the outer shape has only the outline. (6marks)



**Question 2 (20marks)**

- (a) Write a program that requests user to input two integer values, compare them and print out the larger value on the screen. (6marks)
- (b) (i) Write an applet code that display the message on the web page:  
"Wonderful to use Applets in web pages". (4marks)
- (ii) Write the code to attach the applet code on the web page. (3marks)
- (c) An array program is required to store student's examination results for OOP II unit. The program captures the marks, calculate the total, average score, and determine the highest mark and lowest mark. The program the print out the results on the screen.  
NB: The program should first ask the user to specify the number of students to capture the marks for.

Required:

Write the array program that meets the above requirements. (7marks)

**Question 3 (20marks)**

- (a) Explain why Java is regarded as fully *oriented programming language*. (2marks)
- (b) Using example demonstrate how to convert user input into: (4marks)
- i. Integer
  - ii. Float
- (c) Design a class program for computing salary of a Contract Employee. The class consists the following member variables: *Hours worked and hourly rate*. The methods include: a *constructor, getEmployeeDetails, and computeSalary*. Both methods contain two arguments representing hours and hourly pay. The *getEmployeeDetails* captures the hours worked and hourly rate. *computeSalary* method calculates and displays the salary earned by the

employee. The class program consists of one object named *MyStaff*.

(10marks)

- (d) What is the role of *finalize()* method in class program? Show how *finalize()* is defined in Java. (4marks)

**Question 4 (20marks)**

- (a) Given the following program code, rewrite it using *switch case*:

(4marks)

```
int point;
String Grade;
if(point==4)
{
Grade="Distinction";
}
else if(point==3)
{
Grade="Credit";
}
else if(point==2)
{
Grade="pass";
}
Else if (point==1)
{
Grade="Fail";
}
else
{
Grade="Invalid point. No grade";
}
System.out.println("your grade="+Grade);
```

- (b) Write program code segment that carry out the following:

i. Input user age through input Box and display the age in a message.

(4marks)

ii. Retrieve and display image named *myPicture.jpg*.

(3marks)

iii. Create a command button labeled *SUBMIT*.

(2marks)

- (c) Write output generated by the code given below:

(2marks)

```
import java.awt.*;
```

```
public class MyItems extends java.applet.Applet {
```

```

public void init() {
    List lst = new List(5, true);

    lst.addItem("Hamlet");
    lst.addItem("Claudius");
    lst.addItem("Gertrude");
    lst.addItem("Polonius");
    lst.addItem("Horatio");
    lst.addItem("Laertes");
    lst.addItem("Ophelia");

    add(lst);
}
}

```

(d) What is a constructor? Show how constructor is implemented in Java. (5marks)

### Question 5 (20marks)

- (a) Give three characteristics of a good user interface. (3marks)
- (b) Write an Applet program that creates user interface for selecting gender as either male or female. (6marks)
- (c) Using example, explain the function of the following layout managers on user interface components. (4marks)
- i. Flow layout
  - ii. Grid layout
- (d) Write an application to explain and demonstrate the role of polymorphism in object oriented programming. (4marks)
- (e) Explain the following features of Java language: (3marks)
- i. Multithreaded
  - ii. Distributed
  - iii. Secure