



# TECHNICAL UNIVERSITY OF MOMBASA

## INSTITUTE OF COMPUTING AND INFORMATICS

### DEPARTMENT OF COMPUTER SCIENCE & INFORMATION TECHNOLOGY

#### UNIVERSITY EXAMINATION FOR:

#### BACHELOR OF SCIENCE IN INFORMATION TECHNOLOGY

#### ICS 2201: OBJECT ORIENTED PROGRAMMING II

#### END OF SEMESTER EXAMINATION

**SERIES: APRIL 2016**

**TIME: 2 HOURS**

**DATE:** Pick Date Select Month Pick Year

#### **Instructions to Candidates**

You should have the following for this examination

-Answer Booklet, examination pass and student ID

This paper consists of **FIVE** questions. Attempt question ONE (Compulsory) and any other TWO questions.

**Do not write on the question paper.**

#### **Question ONE**

(a) Define the following terms:

- |              |           |
|--------------|-----------|
| (i) Object   | (2 Marks) |
| (ii) Class   | (2 Marks) |
| (iii) Applet | (2 Marks) |

(b) Distinguish between the following object oriented features:

- |  |           |
|--|-----------|
| (i) Inheritance and Encapsulation        | (4 Marks) |
| (ii) Dynamic binding and Message passing | (4 Marks) |
| (iii) Constructors and Destructors       | (4 Marks) |

(c) Enumerate at least three differences between procedural programming and object oriented programming.

(6 Marks)

(d) Rewrite the following if.....else code fragment with its equivalent switch statement

(4marks)

```

If (x==1)
cout<<"January ";
else if (x==2)
cout<<"February ";
else
cout<<"Enter a valid No."

```

(e) Indicate whether the variable names used in the declaration statements below are valid or not. If not explain:

(i) int 4rever; (1 Mark)

(ii) float distance; (1 Mark)

### Question TWO

(a) write the general format of an object oriented program (4 Marks)

(b) Write a program that uses a class named Circle to accept the radius of a circle and compute both the area and circumference (area= $\pi$ \*radius\*radius, circumference= $\pi$ \*diameter). (10 Marks)

(c) List and explain the control structures as used in JAVA (6 Marks)

### Question THREE

(a) Differentiate:

(i). Call by value and call by reference (4 Marks)

(ii). Static variable and instance variable (4 Marks)

(b) Write a program that accepts marks for four subjects, computes the average and awards an order of merit based on the average mark using the following classification.

Average mark	Order of Merit
75-100	Distinction
65-75	Credit
50-65	Pass
0-50	Fail

(12 Marks)

### Question FOUR

(a) Differentiate between Do...while and while... statement. (4 marks)

(b) Write a program that gets the sum of all numbers between 100 and 300 that are divisible by 5 using the:

(i). do...while loop (6 marks)

(ii). For... loop (6 marks)

(c) Rewrite the codes in the above question {b. (i) and (ii)} using functions. (4 marks)

### Question Five

(a) Explain ALL the components of main ( ) method as given below (3marks)

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

i. Play audio clip named mySong.au. (3marks)

ii. Retrieve and display image named myPicture.jpg . (3marks)

iii. Create a command button labeled SUBMIT. (3marks)

(c) Write output generated by the code given below: (4marks)

```
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) Differentiate between a checkBoxclass from a checkGroupbox class. (4marks)