



Kasarani Campus
Off Thika Road
Tel. 2042692 / 3
P. O. Box 49274, 00100
NAIROBI
Westlands Campus
Pamstech House
Woodvale Grove
Tel. 4442212
Fax: 4444175

**KIRIRI WOMENS' UNIVERSITY OF SCIENCE AND TECHNOLOGY
UNIVERSITY EXAMINATION, 2016/2017 ACADEMIC YEAR
SECOND YEAR, FIRST SEMESTER EXAMINATION
FOR THE DEGREE OF BACHELOR OF SCIENCE
(COMPUTER SCIENCE)**

Date: 8th August, 2016.
Time: 2.00pm – 4.00pm

KCS 200 - OBJECT ORIENTED PROGRAMMING II

INSTRUCTIONS TO CANDIDATES

ANSWER QUESTION ONE (COMPULSORY) AND ANY OTHER TWO QUESTIONS

QUESTION ONE (30 MARKS)

- a) Using sample java codes explain the following concepts;
- i) Array initialization (3 Marks)
 - ii) Polymorphism (3 Marks)
 - iii) Constructor declaration and initialization (4 Marks)
- b) Design a class program for a *Book*. The class consist the following member variables: *Book-title*, *author*, *publisher* and *ISBN-number*. The methods include: *getAuthorDetails()* (for initializing the author's details) and *BookDetails()* (for printing the *Book details* on the screen). The class contains one object *MyBook*. (6 Marks)
- c) Describe any three rules for identifiers in Object Oriented Programming II. (6 Marks)
- d) State the syntax for the *for loop*. (4 Marks)
- e) Differentiate between local and instance variables in java. (4 Marks)

QUESTION TWO (20 MARKS)

a) Sample the code below and answer the subsequent questions;

```
public class MySwitch {
public static void main(String[] args) {
    int k=10;
    switch(k) {
    case 10:
        System.out.println("ten");
    case 20:
        System.out.println("twenty");
        break;
    default:
        System.out.println("This is the default output");
        break;
    }
}
}
```

- i) What is the name of above class? (2 Marks)
- ii) List all the java reserved words in the above class. (5 Marks)
- iii) Write the above class using if...../else statements (4 Marks)
- iv) Write a simple java program that prompts the user for two double values, gets the sum and prints out the sum on the screen (5 Marks)
- v) Using a “for” loop structure; write a program to get the sum of the first 10 numbers in the following series; 2+4+8+16..... (4 Marks)

QUESTION THREE (20 MARKS)

a) Consider the following code fragment;

```
int sum = 0;
int i = 0;
while (i < 5)
{
    sum += i;
    i++;
}
System.out.print(sum);
```

Replace the while loop in the fragment above with a for loop that prints the same value of sum variable.

(6 Marks)

- b) Write a program that calculates the area of a rectangle. (8 Marks)
- c) Using an example, declare a java method and explain its four various parts. (6 Marks)

QUESTION FOUR (20 MARKS)

- a) Define the following terms;
- i) Objects
 - ii) Class
 - iii) Method overriding
- (6 Marks)
- b) Describe the three types of programming errors in JAVA. (6 Marks)
- c) Write a program that prompts the user to enter the radius of a circle, then computes and outputs the area and circumference of the circle (Area = $p * radius^2$, Circumference = $2 * radius * p$). (8 Marks)

QUESTION FIVE (20 MARKS)

- a) For each of the following pairs of concepts that are used in Java explain similarities and differences and discuss when you would use one rather than the other. If there are important syntactic differences, method names, degrees of generalization possible or the like, then any code fragments you give in illustration should be as short as possible to make the desired point.
- i) JApplet and simple Java applications (4 Marks)
 - ii) Vector and arrays of strings (String []) (3 Marks)
 - iii) class, abstract class and interface (3 Marks)
- b) Rewrite the following while loop as do-while loops;
- ```
int count = 0, sum = 0;
while (count < 10){
sum += count;
count++;
}
```
- (4 Marks)
- c) Using nested if statement, write a Java program code to print the message “You did pass” or “You did not pass” depending on the test score. If the test score is 50 or higher, is passing else fail. (6 Marks)