



UNIVERSITY EXAMINATIONS

SECOND SEMESTER 2023/2024 ACADEMIC YEAR

**SECOND YEAR EXAMINATION FOR THE DEGREE OF
BACHELOR OF SCIENCE IN (ICT) AND BACHELOR OF
COMPUTER SCIENCE**

**BICT 212/COMP 211: OBJECT ORIENTED PROGRAMMING
I/OBJECT ORIENTED ANALYSIS AND DESIGN**

STREAM: R

TIME: 2 HRS

DAY: TUESDAY [11.30A.M – 1.30 P.M] DATE: 16/04/2024

THIS QUESTION PAPER CONSISTS OF FOUR (4) PAGES

PLEASE DO NOT OPEN UNTIL THE INVIGILATOR SAYS SO.

INSTRUCTIONS

- i. **Question One is COMPULSORY.**
- ii. **Attempt any other TWO Questions from the remaining section.**
- iii. **Do not write on the question paper**
- iv. **Show your working clearly**

SECTION A (Compulsory) TOTAL MARKS FOR THIS SECTION IS 30.**QUESTION ONE (30 MARKS)**

- a) Discuss the difference between procedure-oriented programming and OOP **(2 Marks)**
- b) Explain **five** features of java programming language **(5 Marks)**
- c) Distinguish between a user defined function and a predefined function in computer programming. **(4 Marks)**
- d) Describe the terms constants and variables as used in java programming **(4 Marks)**
- e) Kenya Commercial Bank has introduction an incentive policy of giving bonus to all its deposits holders. The policy is as follows. A bonus of 2% Of the balance held on 31st December is given to every one irrespective of their balances, and 10% is given to female account holder if their balance is more than Kshs 5000/=. Develop a block diagram to illustrate the above statement. **(5 Marks)**
- f) Write a java program that displays odd numbers between 1 and 20 using the for loop. **(5 Marks)**
- g) Describe **three** non-primitive data types used in java. **(3 Marks)**
- h) Demonstrate how to include comments in any Java code. **(2 Marks)**

SECTION B: ANSWER ANY TWO QUESTIONS**QUESTION TWO (20 MARKS)**

- a) The following is snippet code of simple java program. Explain in depth the meaning of each and every line of code **(6 Marks)**

```

/*
This is a simple Java program.
Call this file "Example.java".
*/

```



```

public class Programme
{
// Your program begins with a call to main().
public static void main(String args[])
{
System.out.println("This is a simple Java program.");
}
}

```

- b) Discuss the difference between conditional and iterative statements in java. **(2 Marks)**
- c) Explain two different methods used to import packages in java. **(4 Marks)**
- d) Explain four types of access modifiers in java programming. **(4 Marks)**
- e) Discuss two types of arrays. **(4 Marks)**

QUESTION THREE (20 MARKS)

- a) Define JVM and its importance in java programming. **(3 Marks)**
- b) Explain four tools used with JDK to develop and run a java program. **(4 Marks)**
- c) Write a java code that reads the Age of a person and outputs an appropriate message based on; If age<18 print” below 18 years” and If age >=18 print “Issue ID” **(5 Marks)**
- d) Describe the meaning of the following concepts in the context of java programming and write a sample java code that demonstrates its implementation.
 - i. Variable declaration **(2 Marks)**
 - ii. Variable initialization **(2 Marks)**
- f) Describe the syntax of the IF THEN statement. **(4 Marks)**

QUESTION FOUR (20 MARKS)

- a) What is the difference between an operator and operand? **(2 Marks)**
- b) Explain the use of an abstract class in java programming. **(2 Marks)**
- c) With the use of examples, differentiate between the use of break and continue statements in java programming. **(3 Marks)**
- d) Discuss two ways of printing variables in any java program. **(2 Marks)**
- e) Describe the syntax of the switch statement. **(5 Marks)**
- f) Describe three steps in creating objects in OOP. **(6 Marks)**



QUESTION FIVE (20 MARKS)

- a) Write a java program that compute the area of a rectangle and displays results. **(5 Marks)**
- b) Describe the different types of java packages. **(5 Marks)**
- c) Explain the following terms as used in Object Oriented Programming (OOP):
 - i. Method Overriding and Method Overloading **(2 Marks)**
 - ii. Constructor **(2 Marks)**
 - iii. Applet **(2 Marks)**
 - iv. Polymorphism **(2 Marks)**
 - v. Multiple Inheritance **(2 Marks)**
- d) Write a java application that asks the user to enter two integers, obtains them from the user and prints their sum, product, difference and quotient (division). **(5 Marks)**