



**THE CATHOLIC UNIVERSITY OF EASTERN AFRICA  
A. M. E. C. E. A**

**GABA CAMPUS - ELDORET**

**MAIN EXAMINATION**

**JANUARY – APRIL 2023**

**FACULTY OF SCIENCE**

**DEPARTMENT OF COMPUTER AND INFORMATION SCIENCE**

**BACHELOR OF SCIENCE IN COMPUTER SCIENCE**

**CMT 211: OBJECT ORIENTED PROGRAMMING II**

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**DATE: April 2023**

**Duration: 2 Hours**

**INSTRUCTIONS: Answer Question ONE and any other TWO Questions**

**Q1.**

- a) What do you think are the major issues facing the software industry today? **(4 Marks)**
- b) What is object-oriented programming? **(1 Marks)**
- c) What is the unique advantage of an object-oriented programming paradigm? **(4 Marks)**
- d) Describe inheritance as applied to OOP? **(4 Marks)**
- e) Why is Java known as a platform-neutral language? **(4 Marks)**
- f) What is multithreading? How does it improve the performance of Java? **(4 Marks)**
- g) List at least two major differences between C and Java. **(2 Marks)**
- h) Describe the structure of a typical Java program. **(4 Marks)**
- i) What is the task of the main method in a Java program? **(2 Marks)**
- j) What is a token? **(1 Marks)**

**Q2.**

- a) Write a program to find the number of and sum of all integers greater than 100 and less than 200 that are divisible by 7. **(6 Marks)**
- b) Describe different levels of access specifier available in java. **(6 Marks)**
- c) Enumerate the basic rules of creating identifiers in Java. **(4 Marks)**
- d) Describe the syntax of single inheritance in java. **(4 Marks)**

**Q3.**

- a) Describe in detail the steps involved in implementing a standalone program. **(6 Marks)**
- b) Write a program to print the following pattern **(6 Marks)**  

```
1
1 2
1 2 3
1 2 3 4
```
- c) What is the contribution of Java to the world wide web? **(4 Marks)**
- d) Describe the role of html in the implementation of Java applets. **(4 Marks)**

**Q4.**

- a) List a few areas of application of OOP technology. **(4 Marks)**
- b) Distinguish between the following terms:
  - i) Objects and classes. **(4 Marks)**
  - ii) Data abstraction and data encapsulation. **(4 Marks)**
  - iii) Inheritance and polymorphism. **(4 Marks)**
  - iv) Dynamic binding and message passing. **(4 Marks)**

**Q5.**

- a) The following code results in compile time error. Identify the error. **(2 Marks)**

```
public static void display()
{
    Int x=123456;
    Float f=100.12;
    System.out.println("Float value="+f);
}
```

- b) Write a program to illustrate the use of overriding methods. **(6 Marks)**
- c) How does a class accomplish the principal of data hiding? **(4 Marks)**
- d) Write a statement to declare and instantiate an array to hold Marks obtained by students in different subjects in a class. Assume that there are up to 60 students in a class and there are 8 subjects. **(6 Marks)**
- e) What is an interface? **(2 Marks)**

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