



MACHAKOS UNIVERSITY

University Examinations for 2022/2023

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF COMPUTING AND INFORMATION TECHNOLOGY

EXAMINATION FOR

**BACHELOR OF SCIENCE (TELECOMMUNICATION AND INFORMATION
TECHNOLOGY)**

BACHELOR OF SCIENCE (ELECTRICAL AND ELECTRONICS ENGINEERING)

BACHELOR OF SCIENCE (MATHEMATICS AND COMPUTER SCIENCE)

**BACHELOR OF SCIENCE (TELECOMMUNICATION AND INFORMATION
TECHNOLOGY)**

BACHELOR OF SCIENCE (ELECTRICAL ENGINEERING)

BACHELOR OF SCIENCE (MECHANICAL ENGINEERING)

BACHELOR OF SCIENCE (INFORMATION TECHNOLOGY)

BACHELOR OF SCIENCE (STATISTICS AND PROGRAMMING)

BACHELOR OF SCIENCE (MATHEMATICS)

**EEE 102 /SPH 409/EMM 201/SIT 223: COMPUTER PROGRAMMING II/OBJECT
ORIENTED PROGRAMMING**

DATE:

TIME:

INSTRUCTIONS: Answer Question **ONE** and other **TWO** Questions from this paper.

QUESTION ONE (COMPULSORY) (30 MARKS)

- a) Discuss the following terms used in C++
 - i. Message passing (3 marks)
 - ii. Polymorphism (3 marks)
- b) Explain the use of void main() in C++ (2 marks)
 - i. Define the term class member function in C++ (2 marks)
 - ii. Create a code snippet to show how you can define a member function outside the class in C++ (4 Marks)

- c) i) Define class in C++ (2 marks)
- ii) Create a code snippet to how you declare a class in C++ (4 marks)
- iii) Create a code snippet show how objects are created in C++. (4 marks)
- d) Discuss THREE types of loops used in C++ (6 marks)

QUESTION TWO (20 MARKS)

- a) Explain with appropriate examples:
 - i. Call by value (4 marks)
 - ii. Call by reference (4 marks)
- b) inheritance is one of the building blocks of object oriented programming, discuss the following in relation to object oriented programming
 - i. Multiple inheritance (3 marks)
 - ii. Using a code snippet, show how code reuse is achieved through inheritance. (5 marks)
- c) Outline the differences between C and C++ (4 marks)

QUESTION THREE (20 MARKS)

- a) i. Write a program in C++ to print the sum of two numbers. (3 marks)
- ii. Outline THREE differences between procedural and object oriented programming languages (3 marks)
- b) Outline THREE concepts of object oriented programming. (3 marks)
- c) Using a code snippet show how you can define a class in C++ (3 marks)
- d) Differentiate between (==) operator and (=) operator in programming languages (4 marks)
- e) Use a code snippet to show how encapsulation can be achieved in C++ (4 marks)

QUESTION FOUR (20 MARKS)

- a) Using examples, show the difference between in-line function and friend function as used in C++. (6 marks)
- b) Discuss THREE types of constructors (3 marks)
- c) Outline THREE decision making statements in C++ (3 marks)
- d) Write a code snippet using ONE of the statements to show how control occurs in C++ language (5 marks)
- e) Outline THREE applications of OOP (3 marks)

QUESTION FIVE (20 MARKS)

- a) Discuss the function of destructors in C++ (4 marks)
- b) i) explain what private function in C++ (3 marks)
ii) With the aid of a code snippet, show how private functions are declared in C++ language. (3 marks)
- c) Discuss the differences between operator overloading and function overloading (6 marks)
- d) Explain TWO data types in C++ and show how they are declared (4 marks)