



MACHAKOS UNIVERSITY

University Examinations for 2022/2023 Academic Year

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF COMPUTING AND INFORMATION TECHNOLOGY

SECOND YEAR SECOND SEMESTER EXAMINATION FOR

BACHELOR OF SCIENCE (COMPUTER SCIENCE)

BACHELOR OF SCIENCE (AUCTURAL SCIENCE)

SCO 103: OBJECT ORIENTED PROGRAMMING

SST202: OBJECT ORIENTED PROGRAMMING

DATE: 19/4/2023

TIME: 2:00 – 4:00 PM

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

QUESTION ONE (COMPULSORY) (30 MARKS)

- a) Define a class member function (2 marks)
- b) Write a code snippet to implement a class member function using C++. (6 marks)
- c) Explain the THREE access modifiers used in C++ (6 marks)
- d) Discuss the main features of OOP (6 marks)
- e) Differentiate between a class and a method (4 marks)
- f) With the aid of a code snippet, differentiate between a class and an object (6 marks)

QUESTION TWO (20 MARKS)

- a)
 - i. Define resolution operator (::) (2 marks)
 - ii. Demonstrate how resolution operator is used in C++ (6 marks)
- b) Inheritance is one of the building blocks of object oriented programming, discuss the following in relation to object oriented programming
 - i. Define multiple inheritance (2 marks)
 - ii. Using a code snippet, show how code reuse is achieved through inheritance. (5 marks)
- c) With the aid of a code snippet, explain private access modifier for class members. (5 marks)

QUESTION THREE (20 MARKS)

- a) Define a superclass (2 marks)
- b) Explain why you would advise a programmer to use OOP. (6 marks)
- c) Demonstrate how you define a class in C++ (6 marks)
- d) Use a code snippet to show how polymorphism occurs, clearly indicating by use comments. (6 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) Describe the types of inheritance supported in C++ (6 marks)
- c) Explain destructor with the aid of an example. (4 marks)
- d) Explain TWO data types in C++ and show how they are declared (4 marks)

QUESTION FIVE (20 MARKS)

- a) Describe THREE storage classes and give examples (6 marks)
- b) With the aid of a code snippet, show how function overloading is achieved in C++ language. (6 marks)
- c) Discuss the two types of polymorphism giving examples (6 marks)
- d) Define a constructor (2 marks)