



MACHAKOS UNIVERSITY

University Examinations for 2018/2019

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF COMPUTING AND INFORMATION TECHNOLOGY

FIRST YEAR SPECIAL/SUPPLEMENTARY EXAMINATION FOR

BACHELOR OF SCIENCE (STATISTICS AND PROGRAMMING)

BACHELOR OF SCIENCE (COMPUTER SCIENCE)

BACHELOR OF SCIENCE (MATHEMATICS)

SMA 391/SST 202/SCO 103: OBJECT ORIENTED PROGRAMMING 1

DATE: 25/7/2019

TIME: 2.00-4.00 PM

INSTRUCTIONS

Answer **question ONE** and any other **TWO** questions.

QUESTION ONE [COMPULSORY, 30 MARKS]

- a) Explain what is meant by the following terms:
- i. Class;
 - ii. Object ;
 - iii. Inheritance;
 - iv. Polymorphism;
 - v. Encapsulation; (15 marks)
- b) Name and explain the five major features of object- based programming languages. (15 marks)

QUESTION TWO [20 MARKS]

- a) Outline the structure of C++ and provide a code fragment to support your answer (10 marks)
- b) Define the following terms as used in in C++ Language.
- i. Keyword
 - ii. Constant

- iii. Identifier
- iv. Variable
- v. Token (10 marks)

QUESTION THREE [20 MARKS]

- a) Define an *array* as used in object oriented programming? (2 marks)
- b) Name and explain two applications of C++ programming language (4 marks)
- c) Write a code program to calculate student average mark in C++ language (10 marks)
- d) Explain two data types in C++ and show how they are declared (4 marks)

QUESTION FOUR [20 MARKS]

- a) Outline two rules that must be considered when declaring a member function outside the class (4 marks).
- b) Write a code fragment using “if statement” to show how control occurs in C++ language (6 marks)
- c) Explain the meaning of single inheritance and give a code fragment to support your answer. (10 marks)

QUESTION FIVE [20MARKS]

- a) Differentiate between multiple inheritance and hierarchical inheritance (10 marks)
- b) Explain the meaning and the work of a constructor in C++ language (6 marks)
- c) Write a program to demonstrate the execution of constructor and destructors. (4 marks)