



MACHAKOS UNIVERSITY

University Examinations for 2016/2017

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF COMPUTING AND INFORMATION TECHNOLOGY

FIRST YEAR SECOND SEMESTER EXAMINATION FOR DEGREE IN
BACHELOR OF SCIENCE IN COMPUTER SCIENCE

SCO 103: OBJECT-ORIENTED PROGRAMMING 1

DATE: 30/5/2017

TIME: 8:30 – 10:30 AM

INSTRUCTIONS

Answer Questions ONE and Any Other Two Questions

QUESTION ONE (30 MARKS)

- a) Define the following terms related to object oriented paradigm. (10 marks)
- i. Object
 - ii. Class
 - iii. Polymorphism
 - iv. Virtual function
 - v. Encapsulation
- b) i. Differentiate between *constructor* and *destructor* (3 marks)
- ii List the C++ operators which cannot be overloaded (2½ marks)
- c) Discuss THREE access modifiers used in C++ programming. (4½ marks)
- d) i Write a program in C++ to implement a friend function. (6 marks)
- ii Differentiate procedural programming and object oriented programming. (4 marks)

QUESTION TWO (20 MARKS)

- a) Explain two difference forms of inheritance supported by C++ with an aid of diagram. (4 marks)
- b) Write a C++ program for the following specification. (6 marks)
- Class: AddressBook
- Data Members: Name, Address, PhoneNo, Email
- Member functions: InsertData(), DispayData().
- c) List some of the special properties of the constructor functions. (4 marks)
- d) Compare the various parameter passing mechanisms supported by C++. (6 marks)

QUESTION THREE (20 MARKS)

- a) Write an object oriented program in C++ that defines a class Circle with the data members radius, area and circumference and the member functions get Area and get Circumference which calculates and outputs the Area and the circumference respectively of an object Circle A, the program should make use of a constructor. (8 marks)
- b) Discuss the role of comments in C++; State and discuss the TWO kinds of comments. (4 marks)
- c) Discuss any FIVE major benefits associated with the use of an object oriented programming language like C++ as opposed to procedural languages. (8 marks)

QUESTION FOUR (20 MARKS)

- a) Discuss the four types of software maintenance. (8 marks)
- b) Explain the technique of exception handling, and its benefits (4 marks)
- c) What are the virtual classes? Explain the need for virtual classes while building class hierarchy. (8 marks)

QUESTION FIVE (20 MARKS)

- a) Explain the following file functions with examples (4 marks)
- fopen ()
 - fclose ()
 - fprintf ()
 - fscanf ()

- b) i Explain software reuse, and its benefits (4 marks)
ii Differentiate interpreter and compiler as used in programming. (4 marks)
c) Write a C++ Program to Define a Class REPORT and accessing member function using its object with the following specification: (8 marks)

Private members :

adno	4 digit admission number
name	20 characters
marks	an array of 5 floating point values
average	average marks obtained
GETAVG ()	a function to compute the average obtained in five subject

Public members:

READINFO ()	function to accept values for adno, name, marks. Invoke the function
GETAVG()	
DISPLAYINFO ()	function to display all data members of report on the screen.