



THE MOMBASA POLYTECHNIC UNIVERSITY COLLEGE

(A Constituent College of Jkuat)

Faculty of Engineering and Technology

DEPARTMENT OF COMPUTER SCIENCE & INFORMATION
TECHNOLOGY

DIPLOMA IN INFORMATION COMMUNICATION TECHNOLOGY - DICT
2K 10J
YR 2 SEM II

EIT 2208: OBJECT ORIENTED PROGRAMMING II

END OF SEMESTER EXAMINATIONS

SERIES: AUGUST/SEPTEMBER 2011

TIME: 2 HOURS

Instructions to Candidates:

You should have the following for this examination

- *Answer booklet*

Answer question **ONE (COMPULSORY)** and any other **TWO** questions

Answers **MUST** be written clearly within the answer booklets provided.

Unless otherwise stated, all codes and or code stubs **MUST** adhere to C++ programming language syntax and semantics

This paper consists of **THREE** printed pages

Question 1 (Compulsory)

- a) In respect to Object Oriented Programming, explain the meaning of the following terms (6 marks)
- i) Inheritance
 - ii) Dynamic data binding
 - iii) Message passing
 - iv) Polymorphism
 - v) Constructor
 - vi) Abstraction
- b) Outline **FOUR** characteristics of a Constructor (4 marks)
- c) Differentiate between a parameterized constructor and an implicit constructor, giving an example code implementation of each, where applicable (2 marks)
- d) Explain the following terms (4 marks)
- i) Operator overloading
 - ii) Function overloading
 - iii) Data members and member functions
 - iv) Super class and subclass
- e) State and explain **FOUR** applications of inheritance (8 marks)
- f) List and briefly explain **THREE** types of inheritance (6 marks)

Question 2

- a) In C++, using the concept of inheritance, a sub class inherit properties of base class. What **can't** a subclass inherit from the base class? (3 marks)
- b) Name and briefly explain any **THREE** access specifiers (6 marks)
- c) Name and explain **FOUR** circumstances under which buffer **synchronization** takes place (8 marks)
- d) Name and state the function of any **THREE** classes used to perform output and input of character to and/or from files (3 marks)

Question 3

- a) Differentiate between an Abstract Data Type and Abstraction terminologies (2 marks)
- b) Using a suitable example, explain the components of a member function of stream object used to open a file (3 marks)
- c) Differentiate between get and put stream pointers (2 marks)

- d) Briefly explain the meaning of an inline function (2 marks)
- e) Write a class definition clearly showing the implementation of parameterized constructor and copy constructor (6 marks)
- f) Give the syntax for the member function definition outside the class (3 marks)
- g) Give the general syntax of declaring functions (2 marks)

Question 4

- a) Using a class definition of your choice, clearly show the concept of multiple inheritance (9 marks)
- b) State and explain **THREE** types on constructors (3 marks)
- c) Briefly explain the following term Function prototype (2 marks)
- d) Briefly explain the following parameter passing mechanisms (3 marks)
 - (i) Passing parameter by value
 - (ii) Passing parameter by reference
 - (iii) Passing parameter by address
- e) Write a code stub to demonstrate the general class structure (3 marks)

Question 5

- a) Write a class definition of your choice to demonstrate the concept of single inheritance (5 marks)
- b) Differentiate between 'base class' and 'derived class' (2 marks)
- c) Name any **THREE** classes which can be used to perform output and input of characters to and or from a file. Give the default mode parameter for each (3 marks)
- d) Write a C++ program with two functions to clearly demonstrate the concept of function overloading. (5 marks)
- e) Write a program to demonstrate the operator overloading as one way of implementing the concept of polymorphism in C++ Programming Language (5 marks)