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 biding
   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)