THE MOMBASA POLYTECHNIC UNIVERSITY COLLEGE

(A Constituent College of JKUAT)

(A Centre of Excellence)

Faculty of Engineering & Technology

DEPARTMENT OF COMPUTER SCIENCE & INFORMATION TECHNOLOGY

UNIVERSITY EXAMINATION FOR:

BACHELOR OF SCIENCE & BACHELOR OF TECHNOLOGY IN INFORMATION TECHNOLOGY

(BSc. IT J12&M12/BTech. IT M11)

BIT 2214/EIT4210: OBJECT ORIENTED ANALYSIS & DESIGN

END OF SEMESTER EXAMINATION

SERIES: DECEMBER 2012

TIME: 2 HOURS

Instructions to Candidates:

You should have the following for this examination

- *Answer Booklet*

This paper consist of **FIVE** questions

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

Maximum marks for each part of a question are as shown

This paper consists of **THREE** printed pages

Question One (Compulsory)

a) Briefly explain the meaning of the following terms as used in object oriented analysis and design.
(i) Abstraction
(ii) Encapsulation
(iii) Modularity **(6 marks)**

b) Briefly explain any **TWO** object oriented concepts that implement the following object oriented principles:
(i) Abstraction

(ii) Encapsulation **(6 marks)**

c) Distinguish between the following object oriented concepts:
(i) Class and Object
(ii) Attribute and Operation
(iii) Aggregation and Association **(6 marks)**

d) Suppose we wish to model an application for registering students in a university academic semester. Identify:
(i) **THREE** classes for the model **(3 marks)**
(ii) At least **THREE** attributes for each class **(9 marks)**

Question Two

a) Briefly explain the meaning of the following object oriented concepts:
(i) Interface
(ii) Implementation
(iii) Object definition **(6 marks)**

b) Using example of a computer as an object oriented system. Identify:
(i) The interface
(ii) The implementation
(iii) Object definition
(iv) Encapsulation **(14 marks)**

Question Three

a) Explain the meaning of the following terms:
(i) Object Oriented Approach
(ii) Object Oriented Analysis & Design
(iii) Object Oriented Analysis
(iv) Object Oriented Design **(8 marks)**

b) Briefly describe object oriented as a process. **(5 marks)**
c) Consider a software process consisting of the following activities: requirements gathering, object oriented analysis, object oriented design, implementation and deployment. Explain the UML diagrams that are essential for each activity. **(7 marks)**

Question Four

a) Briefly explain the main principles of modeling. **(8 marks)**

b) The Small Library Database System will be used by the Biology Department of a local college to track the borrowing of books and other forms of media, such as Video tapes, and software. A secretary will operate the system and will be responsible for checking out books to students and faculty members. Identify all classes for this system. **(12 marks)**

Question Five

a) Discuss the advantages of Object Oriented Approach. **(6 marks)**

b) Develop a use case model for the following scenario.
The goal is to process different types of credit applications at a bank. The credit applications include those for home equity loans, home mortgage loans, auto loans and credit cards. From the

bank's perspective, therefore, the customers are home owners, home buyers, auto buyers and credit card applicants.

To process any type of loan or credit card application, the bank needs to check the applicant's credit history, based on a report from the credit bureau. For the first two types of loans, the bank summons assessor to assess the property value before making a decision. **(14 marks)**