



TECHNICAL UNIVERISTY OF MOMBASA

Faculty of Engineering & Technology

UNIVERSITY EXAMINATION FOR:
BACHELOR OF TECHNOLOGY IN INFORMATION TECHNOLOGY
(BTIT 12S/13S)

EIT 4210: OBJECT ORIENTED ANALYSIS & DESIGN

END OF SEMESTER EXAMINATION

SERIES: APRIL 2014

TIME: 2 HOURS

Instructions to Candidates:

You should have the following for this examination

- *Answer Booklet*

This paper consists of **FIVE** questions.

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

Maximum marks for each part of a question are as shown

This paper consists of **TWO** 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) Modularity
- (iii) Encapsulation

(6 marks)

b) Briefly explain any TWO object oriented concepts that implement the following object oriented principles:

- (i) Abstraction
- (ii) Encapsulation
- (iii) Hierarchy

(6 marks)

c) Distinguish between the following object oriented concepts:

- (i) Class and Objects
- (ii) Attributes and Operation

(iii) Aggregation and Association (6 marks)

- d) Suppose we wish to model an application for admitting patients in a hospital ward. 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 the following concepts:
- (i) Interface
 - (ii) Implementation
 - (iii) Object definition
 - (iv) Encapsulation (14 marks)

Question Three

- a) Explain the meaning of the following terminologies:
- (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) A small Library Database system has been planned to be developed. 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 videotapes 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 service:
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, onto 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)