TECHNICAL UNIVERSITY OF MOMBASA

SCHOOL OF BUSINESS

DEPARTMENT OF MANAGEMENT SCIENCE

UNIVERSITY EXAMINATION FOR:

BBIT Y3SI SEP 15/J-FT, S-FT

EIT 4210: OBJECT ORIENTED ANALYSIS AND DESIGN

SPECIAL/SUPPLEMENTARY EXAMINATION

SERIES: SEPTEMBER 2018

TIME: 2HOURS

DATE: Sep 2018

Instructions to Candidates
You should have the following for this examination
-Answer Booklet, examination pass and student ID
This paper consists of **FIVE** questions. Attemptquestion ONE (Compulsory) and any other TWO questions.
Do not write on the question paper.

SECTION A (30 MARKS) – COMPULSORY

QUESTION ONE

a) Define the following concepts in object oriented analysis and design

   i).   Class   **(2 Marks)**

   ii).   Data Hiding   **(2 Marks)**

   iii).   Inheritance   **(2 Marks)**

b) Links and association are concepts in OOAD. In reference to association, list and describe three cardinality ratios of association   **(3 Marks)**

c) List three behavior diagrams   **(3 Marks)**

d) List three reasons for drawing use case diagrams   **(3 Marks)**

e) List three building blocks of UML   **(3 Marks)**

f) Using illustrations, discuss the difference between generalization and specialization

      (6 Marks)

g) Define the term dynamic modelling   **(2 Mark)**

h) Three analysis techniques are used in conjunction with each other for object oriented analysis. They include object modelling, dynamic modelling and functional modelling. List four steps that are followed in visualizing the process of dynamic modelling **(4 Marks)**

SECTION B (40 MARKS) ANSWER ANY TWO QUESTIONS

QUESTION TWO

a) Discuss three advantages and two disadvantages of structured analysis as compared to object oriented analysis   **(10 Marks)**

b) Discuss in detail, the various phases involved in object oriented software development using object oriented methodology   **(8 Marks)**

c) List two structure diagrams   **(2 Marks)**

QUESTION THREE

a) Giving examples, discuss four kinds of things in UML **(8 Marks)**

b) Define aggregation **(2 Marks)**

c) Technical University workshop sells a line of high-quality woodworking tools. When customers place orders on the company's Web site, the system checks to see if the items are in stock, issues a status message to the customer, and generates a shipping order to the warehouse, which fills the order. When the order is shipped, the customer is billed. The system also produces various reports. Draw a use case diagram for the order system

(10 Marks)

QUESTION FOUR

a) Discuss four types of relationships that can be represented in UML. Subsequently, give the UML notation of each **(12 Marks)**

b) List four advantages of using an object model **(4 Marks)**

c) Three analysis techniques are used in conjunction with each other for object oriented analysis. They include object modelling, dynamic modelling and functional modelling. List four steps that are followed in visualizing the process of dynamic modelling **(4 Marks)**

QUESTION FIVE

Consider the world of libraries. A library has books, videos, and CDs that it loans to its users. All library material has a id# and a title. In addition, books have one or more authors, videos have one producer and one or more actors, while CDs have one or more entertainers. The library maintains one or more copies of each library item (book, video or CD). Copies of all library material can be loaned to users. Reference-only material is loaned for 2hrs and can't be removed from the library. Other material can be loaned for 2 weeks. For every loan, the library records the user, the loan date and time, and the return date and time. For users, the library maintains their name, address and phone number. Draw a class diagram (or two, if this is more convenient) for the description above. Make sure to show attributes, multiplicities and aggregations/compositions, where appropriate. No need to show any operations. **(20 Marks)**