MURANGA UNIVERSITY COLLEGE

(A constituent College of Jomo Kenyatta University of Agriculture & Technology)

MAIN CAMPUS

SPECIAL/SUPPLEMENTARY UNIVERSITY EXAMINATIONS

2014/2015 ACADEMIC YEAR

THIRD YEAR SECOND SEMESTER EXAMINATIONS

FOR THE DEGREE OF
BACHELOR OF BUSINESS INFORMATION TECHNOLOGY

COURSE CODE: HBT 2305

COURSE TITLE: OBJECT ORIENTED ANALYSIS AND DESIGN

DATE: 7TH AUGUST 2015 **TIME: 2.00-4.00PM**

INSTRUCTIONS TO CANDIDATES

Question ONE (1) is compulsory
Answer THREE (3) questions

MRUC observes ZERO tolerance to examination irregularities

Question ONE (Compulsory)

a) Explain the steps involved in OOA process (8 marks)

b) Differentiate between *an Include Relationship* and an *Extends Relationship* in a use case diagram (4 Marks)

c) Using simple examples and diagrams, Explain how each of the following are depicted in UML (6 marks)

i.) Aggregation and composition

ii.) Constraints

iii.) Class interfaces

iv.) Association classes

d) Explain UML deployment diagrams and component diagrams (8 marks)

Question TWO

a) Explain UML state machine diagrams with an example. (6 marks)

b) Briefly explain four advantages of Object Orientation. (8 marks)

c) Distinguish between formal class or abstract class. (3 marks)

d) Explain the need of an Object diagram. (3 marks)

Question THREE

a) In Model a scenario of the Withdraw Money use case of a Bank ATM system. The user is able to make withdrawal of money. The system employs a standard procedure of validating the card and account holder's password.

i.) List any three main objects (2 marks)

ii.) Describe the main flow of events in this scenario. (6 marks)

iii.) Draw a UML deployment diagram for the ATM system (8 marks)

b) Differentiate between class and object. (4 marks)

Question FOUR

a) The following are description of systems. Draw a UML class diagram to represent the structural model for each of them. (12 marks)

A university offers a number of degree programmes, which are classified into BSc (Hons) degree programme, MSc degree program and PhD degree programme. To teach students in various programmes, the university runs a number of course modules. A particular module could be acceptable to a program, or compulsory to a program, or not acceptable at all to the programme. Each BSc (Hons) degree programme contains a number of modules as acceptable or compulsory, which are classified into stage I modules, advanced modules and honours modules. For a student who studies a BSc (Hons) degree programme, in order to obtain the degree he/she must complete a study plan that consists of at least 8 stage I modules, 16 advanced/honours modules and 4 honours modules that are acceptable to the programme.

b) Outline any four the advantages of Modeling. (4 marks)

c) Briefly explain the characteristic features of an Interaction diagram (4 marks)