

**W1-2-60-1-6**

## JOMO KENYATTA UNIVERSITY

**OF**

**AGRICULTURE AND TECHNOLOGY**

# University Examinations 2015/2016

**SECOND/THIRD YEAR SECOND SEMESTER SPECIAL/SUPPLEMENTARY EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN INFORMATION TECHNOLOGY**

**BIT 2214 : OBJECT ORIENTED ANALYSIS AND DESIGN**

**DATE: FEBRUARY 2016 TIME: 2 HOURS**

**INSTRUCTIONS: ANSWER QUESTION ONE (COMPULSORY) AND ANY OTHER**

**TWO QUESTIONS.**

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**QUESTION ONE (30 MARKS)**

1. Explain the following terms:
2. Object oriented modeling. [2 marks]
3. Object oriented design. [2 marks]
4. Object oriented analysis. [2 marks]
5. Object model. [2 marks]

(b) Explain four features of an object model. [8 marks]

(c) Discuss six tasks in object oriented analysis. [6 marks]

(d) Discuss the following UML components using diagrams: [8 marks]

1. Interaction.
2. State machine.
3. Machine.
4. Class.

**QUESTION TWO (20 MARKS)**

(a) Discuss any five implementation constraints which a developer applies to the conceptual model in object oriented analysis. [10 marks]

(b) Explain the following relationships giving an example for each:

1. Hierarchical relationship. [3 marks]
2. Containment relationship. [3 marks]

(c) Explain four high order programming languages that can be used after Object Oriented Analysis and Design. [4 marks]

**QUESTION THREE (20 MARKS)**

(a) Explain five characteristics of a complex system. [10 marks]

1. Explain the following software development process:
2. Software development macro process. [3 marks]
3. Software development micro process. [3 marks]

(c) Discuss four disadvantages of Object Oriented Analysis and Design. [4 marks]

**QUESTION FOUR (20 MARKS)**

(a) Discuss how to measure quality of a class. [10 marks]

(b) Explain a structural item in UML and a diagram for each structural item identified.

[8 marks]

(c) Using an example explain UML diagram. [2 marks]

**QUESTION FIVE (20 MARKS)**

1. Explain the following in Object Oriented Analysis and Design:
2. Overloading [2 marks] (ii) Polymorphism. [2 marks]

(iii) Inheritance. [2 marks] (iv) Encapsulation. [2 marks]

1. Abstraction. [2 marks] (vi) Class. [2 marks]
2. Objects. [2 marks]

(b) Explain three categories of analysis and design methodology. [6 marks]