# MURANG'A UNIVERSITY OF TECHNOLOGY

## SCHOOL OF COMPUTING AND INFORMATION TECHNOLOGY

### DEPARTMENT OF INFORMATION TECHNOLOGY

UNIVERSITY ORDINARY EXAMINATION

2017/2018 ACADEMIC YEAR

**FIRST** YEAR **SECOND** SEMESTER EXAMINATION FOR THE DIPLOMA IN INFORMATION TECHNOLOGY

SCS 051 – OBJECT ORIENTED DESIGN AND ANALYSIS

DURATION: 2 HOURS

DATE: 17TH APRIL 2018

TIME: 2.00PM – 4.00PM

**Instructions to Candidates:**

1. Answer **Question 1** and **Any Other Two** questions.
2. Mobile phones are not allowed in the examination room.
3. You are not allowed to write on this examination question paper.

## SECTION ONE – ANSWER ALL QUESTIONS IN THIS SECTION

**QUESTION ONE**

(a) With the aid of example explain three characteristics of an object. (6 marks)

(b) With the aid of a diagram explain the difference between. (4 marks)

i. Multilevel inheritance and multiple inheritance

ii. Hybrid and hierarchical inheritance

(c) Explain three factors to consider while selecting software development model. (6 marks)

(d) Discuss four reasons why UML diagrams are used when designing an application. (8 marks)

(e) Munyao an IT student at MUT has been assigned a task of developing a system. Explain six attributes that one can use to check if the developed system is successful. (6 marks)

## SECTION TWO – ANSWER ANY TWO QUESTIONS IN THIS SECTION

**QUESTION TWO**

(a) Object oriented languages use various access specifications. State them and explain how they are used. (6 marks)

(b) Discuss four programming techniques stating their advantages and disadvantages. (8 marks)

(c) State the difference between abstraction and encapsulation as used in object oriented programming. (4 marks)

(d) With the aid of example discuss two symbols used in a use case diagram. (2 marks)

**QUESTION THREE**

(a) i. Define the term UML. (1 mark)

ii. With the aid of a diagram discuss five types of relationship that can be represented in a class diagram. (10 marks)

(b) Explain two types of interaction diagram. (5 marks)

(c) Explain four functions of activity diagram. (4 marks)

**QUESTION FOUR**

(a) i. Define object oriented analysis. (2 marks)

ii. Explain various steps involved in object oriented analysis. (6 marks)

(b) Explain the difference between boundary object entity object and controller as used in robotness analysis. (3 marks)

(c) State at least five benefits of robotness analysis. (5 marks)

(d) With the aid of a diagram discuss four symbols of sequence diagram. (4 marks)