MURANG'A UNIVERSITY OF TECHNOLOGY

SCHOOL OF COMPUTING AND INFORMATION TECHNOLOGY

DEPARTMENT OF INFORMATION TECHNOLOGY

UNIVERSITY ORDINARY EXAMINATION

2018/2019 ACADEMIC YEAR

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

SCS 051 – OBJECT ORIENTED DESIGN CONCEPT

DURATION: 2 HOURS

DATE:

TIME:

Instructions to candidates:

1. Answer question One 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 A: ANWER ALL QUESTIONS IN THIS SECTION

QUESTION ONE (30 MARKS)

a) State and explain four types of commonly used programming techniques (4 marks)
b) With the aid of an example, explain three characteristics of an object (6 marks)
c) Jane, a DIT student at MUT has been assigned the task of developing a system. Discuss six attributes of a successful system (6 marks)
d) (i) Define interaction diagram (2 marks)
   (ii) Explain two types of interaction diagram (4 marks)
e) With the aid of a diagram, explain why swim lanes are used in an activity diagram (2 marks)
f) Discuss polymorphism as used in object oriented programming (4 marks)
g) Discuss two symbols of in use case diagram (2 marks)

SECTION B - ANSWER ANY TWO QUESTIONS IN THIS SECTION

QUESTION TWO (20 MARKS)

a) (i) Using an example, explain inheritance as feature of object oriented programming language (2 marks)
   (ii) With the aid of a diagram, explain four types of inheritance relationship (5 marks)
b) State the difference between abstraction and encapsulation in object oriented programming (4 marks)
c) Object oriented language uses various access specifiers. State them and explain how they are used (10 marks)

QUESTION THREE (20 MARKS)

a) (i) Define UML (1 mark)
   (ii) Explain reasons why UML diagrams are important when developing an application (4 marks)
b) With the aid of a diagram, describe four symbols used in class diagram (4 marks)
c) With the aid of a diagram, discuss at least five relationships that can be represented in a class diagram (10 marks)
d) Explain the difference between object oriented analysis and object oriented design (1 mark)

QUESTION FOUR (20 MARKS)

a) Explain various factors to consider when selecting a software development model to use when designing an application (4 marks)
b) Explain various steps included in object oriented analysis (10 marks)

c) With the aid of a diagram, discuss three steps of robustness analysis diagram (6 marks)