MURANG'A UNIVERSITY OF TECHNOLOGY

SCHOOL OF COMPUTING AND INFORMATION TECHNOLOGY

DEPARTMENT OF INFORMATION TECHNOLOGY

UNIVERSITY ORDINARY EXAMINATION

2018/2019 ACADEMIC YEAR

FIRST YEAR **FIRST** SEMESTER EXAMINATION FOR, MASTER OF SCIENCE IN INFORMATION TECHNOLOGY

SIT 600 – PROBLEM SOLVING WITH PROGRAMMING

DURATION: 2 HOURS

DATE: 19/12/2018

TIME: 9:00-12:00 PM

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: ANSWER ALL QUESTIONS IN THIS SECTION

QUESTION ONE (30 MARKS)

a) Explain the basic steps one would follow in solving programming problem.   (5 mks)

b) Compare and contrast the use of compilers and interpreters in translating program codes.

(10 mks)

c) Explain the use of linkers during execution of computer programs   (10 mks)

SECTION B – ANSWER ANY TWO QUESTIONS IN THIS SECTION

QUESTION TWO (20 MARKS)
a) Compare and contrast the following programming paradigms.

i.	Procedural and logic paradigms.	(8 mks)
ii.	Aspect oriented and object oriented.	(6 mks)
iii.	Functional and scripting.	(8 mks)

QUESTION THREE (20 MARKS)
a) Use the following programming problems to answer the question that follow:

Problem

You are required to create an address list which includes each person's name address, telephone number and e-mail address.

The list should then be printed in alphabetical order.

The names to be included in the list are on business cards and scraps of paper.

Required;

Develop a comprehensive algorithm using the step down decomposition approach- indicating the main steps and their sub-steps or sub-sub steps.   (25 mks)

QUESTION FOUR (25 MARKS)

a) Compare and contrast the following control structures on both C and Java programming languages.

    i.   Sequential. (5 mks)

    ii.   Selection. (5 mks)

   iii. Loops. (5 mks)

   iv. Percussion. (5 mks)

b) Write a program in Java to calculate the factorial of a number. (5 mks)

QUESTION FIVE (25 MARKS)

a) Compare and contrast the Array and linked list implementations of the basic data structures such as queues and stacks. (12 mks)

b) Write a code expect in C programming create, insert and delete items in a stack. (13 mks)