



**MASINDE MULIRO UNIVERSITY OF
SCIENCE AND TECHNOLOGY
(MMUST)**

MAIN CAMPUS

UNIVERSITY EXAMINATIONS

2021/2022 ACADEMIC YEAR

FIRST YEAR FIRST SEMESTER EXAMINATIONS

FOR THE DEGREE

OF

**BACHELLOR OF SCIENCE IN GEOSPATIAL INFORMATION
SCIENCE (GIS)**

COURSE CODE: DPG 108

**COURSE TITLE: INTRODUCTION TO COMPUTER
PROGRAMMING**

DATE: 27/04/2022

TIME: 12 - 2PM

INSTRUCTIONS TO CANDIDATES

ATTEMPT A TOTAL OF FOUR QUESTIONS. QUESTION 1 IS COMPULSORY.

MMUST observes ZERO tolerance to examination cheating

This Paper Consists of 2 Printed Pages. Please Turn Over.

Question 1 [COMPULSORY] (20 marks)






Define and differentiate the following terms with examples in relation to computer programming:

- a) The central processing unit (CPU) (2mks)
- b) Main memory (2mks)
- c) Secondary storage devices (2mks)
- d) Input devices (2mks)
- e) Output devices (2mks)
- f) How does a computer run a program. Describe the process from a High-level programming language to Machine language. (10 mks)

Question 2 (20 marks)

Programming methodology

- a) What do you understand by the term Flow chart? (5 mks)
- b) for the following symbols illustrate when each is used in a flow chart. (10 mks)

- i) 
- ii) 
- iii) 
- iv) 
- v) 

- c) You are required to write a software that will produce student transcripts from a database of marks. Illustrate using a flow chart how you will achieve this task. The task should include all the steps from entry of marks to production of transcripts. The program should indicate the best performing student. (5 mks)

Question 3 (20 marks)

Consider the task to sum up 5 numbers using the formula $\sum(n) = \frac{n(n+1)}{2}$

- a) Elaborate the algorithm steps to achieve this summation using the given formula. (6 mks)
- b) Develop a flow chart for the solution to 3(b) above. (4 mks)
- c) Write the python code to achieve the solution, ensure to use a function in your code as well as any library for computation. (10 mks)

Question 4 (20 marks)

- a) Differentiate the following terms compiler and interpreter. (6mks)
- b) Describe the terms *debugging* in python computer language, and why is necessary in computer programming design. (8 mks)

c) With respect to python programming language, give at least four examples of good and bad syntax. (6mks)

Question 5

(20 marks)

a) With relation to python programming language illustrate with definitions and examples for the usage of the following key words in python. (6mks)

- and,
- while
- if, elif,
- import
- in
- raise, try
- return, def
- lambda

b) given two students with different marks, prepare an algorithm and flow-chart to elaborate the steps to achieve the following, reads too much. (4mks)

c) Define a class as used in python. (2 mks)

d) Define a class for a model student (Student), to have a description of the student, fee status, marks and any other relevant information that can be used to initiate the student and report on his/her status in the university. (8 mks)

