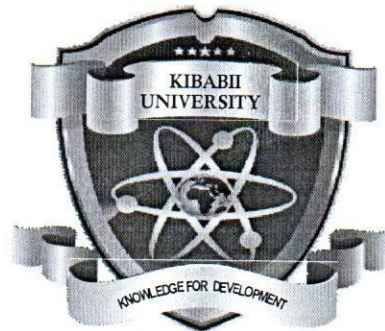(Knowledge for Development)

KIBABII UNIVERSITY

UNIVERSITY EXAMINATIONS
2019/2020 ACADEMIC YEAR

YEAR ONE SEMESTER ONE EXAMINATIONS

FOR THE DEGREE OF BACHELOR OF SCIENCE COMPUTER SCIENCE

COURSE CODE   : CSC 111

COURSE TITLE   : INTRODUCTION TO PROGRAMMING

DATE: 10/02/2021   TIME: 8:00 A.M – 10:00 P.M

INSTRUCTIONS TO CANDIDATES

ANSWER QUESTIONS ONE AND ANY OTHER TWO.

QUESTION ONE (COMPULSORY) [30 MARKS]

a) Define the following terms
   I. Structured programming

   II. Correctness

   III. Debug

   IV. Program

   V. Variable

   [4 Marks]

b) Write algorithms to do the following:
   I. Check whether a year given by the user is a leap year or not. **[4 Marks]**
   II. Given an integer number in seconds as input, print the equivalent time in hours, minutes, and seconds as output. The recommended output format is something like: 7,322 seconds is equivalent to 2 hours 2 minutes 2 seconds **[4 Marks]**
   [2 Marks]
c) Distinguish between a compiler and an interpreter
d) Explain the **TWO** advantages and **TWO** disadvantages of machine language and assembly languages **[4 marks]**
e) Write a program to calculate the are of triangle. Draw the relevant flowchart. **[6 Marks]**
f) Describe 4th generation programming language. Clearly stating characteristics, advantages, disadvantages and example. **[6 Marks]**

QUESTION TWO [20 MARKS]

[4 Marks]

a) Explain the describe term flow chart
b) Write a program to output the following
   I. 11
      22
      33
   II.   *
             **
          * **

   [6 Marks]

   [3 Marks]
c) Write pseudo code to calculate the area of a rectangle
d) Write a program using for loop to produce a 9X9 Multiplication table **[7 Marks]**

QUESTION THREE [20 MARKS]

   [4 Marks]
a) Differentiate while loop and do while loop. Give relevant examples. **[6 Marks]**
b) Describe THREE types of error in a computer program **[4 Marks]**
c) Describe the term Array.
d) Write a program to swap TWO numbers using Passing by reference **[6 Marks]**

QUESTION FOUR [20 MARKS]

a) Describe the Switch case as used in C programming language. [4 Marks]

b) Analyze and State whether the following statements are TRUE or FALSE.
- i. A function cannot be defined inside another function
- ii. Functions cannot return more than one value at a time
- iii. If return type for a function is not specified, it defaults to int
- iv. A function may have any number of return statements each returning different values.

- v. In C all functions except main () can be called recursively.
- vi. Names of functions in two different files linked together must be unique
  [6 Marks]

c) Write c program to calculate compound interest and draw relevant flowchart. [10 Marks]

QUESTION FIVE [20 MARKS]

a) Explain two ways how you can incorporate a constant like Pie in c programming language
  [4marks]

b) Explain the meaning of the following syntax in c programming language
- I.   X++
- II.   X- -
- III. ++X
- IV.   - -X. [4 Marks]

c) #include <stdio.h is what type of command [2 Marks]

d) Describe the rules followed when coming up with identifiers. [4 Marks]

e) Write a programming arrays to add numbers from ONE to TEN and output the sum. [6 Marks]