(*Knowledge for Development*)

KIBABII UNIVERSITY

(KIBU)

UNIVERSITY EXAMINATIONS

2020/2021 ACADEMIC YEAR

SPECIAL/SUPPLEMENTARY EXAMINATIONS

YEAR ONE SEMESTER ONE EXAMINATIONS

FOR THE DEGREE OF

BACHELORS OF SCIENCE

(INFORMATION TECHNOLOGY)

COURSE CODE : BIT 113

COURSE TITLE : FUNDAMENTALS OF PROGRAMMING

SUPPLEMENTARY/SPECIAL PAPER

DATE: 29/09/2021 **TIME: 11.00 A.M- 1.00 P.M**

INSTRUCTIONS TO CANDIDATES

ANSWER QUESTION ONE AND ANY OTHER TWO QUESTIONS

QUESTION ONE [COMPULSORY] (30 MARKS)

a. Define the following terms [3 Marks]
   i. Algorithm
   ii. Program
   iii. Function

b. i. Distinguish between high level language and low level languages. [2 Marks]
   ii. Explain two advantages and two disadvantages of each of the languages mentioned in (i) above. [8 Marks]

c. i. Discuss pre-processors as used in programming. [2 Marks]
   ii. Identify any two pre-processors in C. [2 Marks]

d. Explain any two advantages and one disadvantage of using pseudocodes to design a program. [6 Marks]

e. Design a flowchart for a program that prompts the user to enter a list of numbers until the user decides to end. The program should then display the count of positive, negative and zeros entered. [7 Marks]

QUESTION TWO (20 MARKS)

a. Discuss any three factors to consider when choosing a programming language. [6 Marks]

b. Describe the term array as used in programming. [2 Mark]

c. Explain the importance of using arrays in programming [2 Marks]

d. Write a C program that stores integers given by users in a one dimensional array. Your program should display the sum and average of the array. [10 Marks]

QUESTION THREE (20 MARKS)

a. Identify the two types of loops in programming and explain the difference between them. [4 Marks]

b. Using flowchart constructs, explain any two differences between **while** statement and a **do - while** statements in C. [6 Marks]

c. Write a program that accepts three integer values and returns their sum, average, difference, product, largest and smallest. [10 Marks]

QUESTION FOUR (20 MARKS)

a. i. What is a variable? [1 Mark]
   ii. Discuss the rules of naming a variable in C. [3 Marks]

b. "It is a good programming practice to initialize variables properly". Discuss. [2 Marks]

c. Describe the use **continue** statement in **for** loops and **while** and **do...while** loops. [4 Marks]

d. Write a function named **areaRectangle** that takes length, width as parameter and returns the area of rectangle. Write a program that demonstrates the function by calling it and displays the return value. [10 Marks]

QUESTION FIVE (20 MARKS)

a. Explain modular programming. [2 Marks]

b. Identify any four advantages of modular programming. [4 Marks]

c. Discuss any two differences between compilers and interpreters. [4 Marks]

d. Write a program that prompts the user to input a year and determine whether the year is a leap year or not. Leap Years are any year that can be evenly divided by 4. A year that is evenly divisible by 100 is a leap year only if it is also evenly divisible by 400. [10 Marks]