(Knowledge for Development)

KIBABII UNIVERSITY

(KIBU)

UNIVERSITY EXAMINATIONS

2020/2021 ACADEMIC YEAR

END OF SEMESTER EXAMINATIONS
YEAR ONE SEMESTER ONE EXAMINATIONS

FOR THE DEGREE OF
BACHELORS OF SCIENCE
(INFORMATION TECHNOLOGY)

COURSE CODE :   BIT 113

COURSE TITLE :   FUNDAMENTALS OF PROGRAMMING

DATE: 23/02/2021   **TIME: 8.00 A.M. – 10.00 A.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]**