(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: ~~13/04/2021~~ 19/05/2021 **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. Distinguish between object code and source code. **[2 Marks]**
b. State any two functions of language translators. **[2 Marks]**
c. Analyze the following problems by dividing them into input and storage, processing and output. **[6 Marks]**
   i. Write a program to accept four numbers and return and output their sum, average and product.
   ii. Persons under 18 are not allowed to vote. Write a program to read a person's age and if it is under 18, and output 'Underage person'.
   iii. Write a program to compute the sum of natural numbers from 1 to 10.
d. Write a C program instruction to output 'Warning: Read all labels before washing'. **[2 Marks]**
e. Write a C program instruction to input the price of a textbook and the percentage discount given. **[2 Marks]**
f. State any two characteristics of C Language. **[2 Marks]**
g. Using flowchart extract explain the differences between while loop and do while loop. **[4 Marks]**
h. A carpenter is paid a contract fee of Kshs15000.00 for 3 days work. He hires 3 workers who work for 3 days each at Kshs. 350 a day. Design a pseudocode and a flowchart to calculate and print the amount of money paid to each worker, the total paid to all the workers and the amount the carpenter is left with. **[10 Marks]**

QUESTION TWO (20 MARKS)

a. Define the term operator as used in programming and identify any two types of operators. **[2 Marks]**
b. Using flowchart constructs, explain the differences between **if** and **if .. else** statements. **[6 Marks]**
c. Explain the difference between actual and formal parameters. **[2 Marks]**
d. A club plays football only on Sundays and only if it is not raining. Write a C program that read the day and the weather and output 'Game on' if the weather is good and the day is Sunday, or 'Play suspended' if it is Sunday and it is raining. **[10 Marks]**

QUESTION THREE (20 MARKS)

a. By using valid example, write down the syntax of a variable definition in C. **[2 Marks]**
b. Assume variable **A** holds 10 and variable **B** holds 20, what is? **[3 Marks]**
   i. B%A
   ii. A++
   iii. B--
c. Explain the difference between variable declaration and variable definition. **[2 Marks]**
d. Write a C program to print your name, date of birth and mobile number. **[3 Marks]**

Expected Output:
Name : Jane Malowa
DOB : July 14, 2001
Mobile : 0722334466

e. Write a C program that accepts integer numbers from a user until a user enters sentinel value of 0 and prints the sum of all the positive numbers entered and the sum of all

negative numbers entered. The number of positives and negatives must also be printed. **[10 Marks]**

QUESTION FOUR (20 MARKS)

a. Using a valid example, discuss the usage of a **switch** statement. **[4 Marks]**
b. Define the term pre-processor as used in C programming and list any three examples of pre-processors in C language. **[4 Marks]**
c. Explain the benefits of using arrays in programming. **[2 Marks]**
d. Write a C program that stores 10 integers given by users in a one dimensional array. The program should display the largest and the smallest numbers of the array. **[10 Marks]**

QUESTION FIVE (20 MARKS)

a. Compare and contrast local and global variables. **[4 Marks]**
b. Explain how global variables are declared. **[2 Marks]**
c. i. Write the general form of a C function definition. **[2 Marks]**
   ii. Explain the main parts of a function **[2 Marks]**
d. Write a function named biggest that receives three integer arguments and returns the largest of the three values. **[10 Marks]**