(Knowledge for Development)

KIBABII UNIVERSITY

UNIVERSITY EXAMINATIONS
2021/2022 ACADEMIC YEAR

END OF SEMESTER EXAMINATIONS
YEAR ONE SEMESTER TWO EXAMINATIONS

FOR THE DEGREE OF
(COMPUTER SCIENCE)

COURSE CODE : REN 123

COURSE TITLE : FUNDAMENTALS TO PROGRAMMING IN TECHNOLOGY.

DATE: 13/5/2022 TIME: 9:00 A.M – 11:00 A.M

INSTRUCTIONS TO CANDIDATES

ANSWER QUESTIONS ONE AND ANY OTHER TWO.

QUESTION ONE (COMPULSORY) [30 MARKS]

a) Describe the following terms

I. Programming

II. Interpreter

III. Variable

IV. Flow Chart **[4 Marks]**

b) Describe the advantages of 4th generation programming languages **[4 Marks]**

c) Differentiate between a compiler and an interpreter. **[4 Marks]**

d) Describe the three Features of an Algorithm **[6 Marks]**

e) One Strategy for Designing Algorithms is the Investigation step. Describe the Investigation step as strategy for designing algorithms **[6 Marks]**

f) Write a pseudocode and Draw a flow chart showing how to calculate compound interest **[6 Marks]**

QUESTION TWO [20 MARKS]

a) Distinguish between Compiler and an interpreter **[4 Marks]**

b) With the aid of examples, differentiate between passing by value and passing by reference. **[6 Marks]**

c) Write a program using a function to calculate the area of Triangle **[6 Marks]**

d) Describe the term structured programming languages. Clearly stating the properties of structured programming languages **[4 Marks]**

QUESTION THREE [20 MARKS]

a) Describe the disadvantages of 1st generation programming languages over 3rd generation programming languages **[4 Marks]**

b) Write a pseudocode to calculate the area of a circle **[6 Marks]**

c) Analyze the program below

```
include sdio.h>

int main( ) {

   int number1, number2

   printf("Enter two integers: ");
   scanf("% %", &number1, &number2);

  // calculating sum
   sum = number1 + number2;

   printf("%d + %d = %d", number1, number2, sum);
   return;
}
```

i. Identify the errors in the program **[4 Marks]**

ii. Draw a flow chart for the above program **[6 Marks]**

QUESTION FOUR [20 MARKS]

a) Describe the three types of loops used in C programming languages **[6Marks]**

b) Write program using for Loop in C that can output the following: **[7 Marks]**

i.
```
111
11
1
```

ii.
```
1 1 1
2 2 2
3 3 3
```
[7 Marks]

QUESTION FIVE [20 MARKS]

a) Describe the following terms **[6 Marks]**

I. Array

II. Function Signature

III. Function Overloading

b) Distinguish between Standard library function and User-defined functions **[4 Marks]**

c) Describe the C switch case statement **[5 Marks]**

d) Write a program to calculate the factorial of any given Number in C programming language. **[5 Marks]**