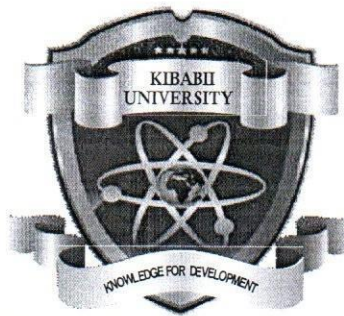


*EP*



*(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**

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#### **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 4<sup>th</sup> 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 1<sup>st</sup> generation programming languages over 3<sup>rd</sup> generation programming languages [4 Marks]
- b) Write a pseudocode to calculate the area of a circle [6 Marks]

- c) Analyze the program below

```
include <stdio.h>
```

```
int main( ) {
```

```
    int number1, number2
```

```
    printf("Enter two integers: ");
```

```
    scanf("%d %d", &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]**