(Knowledge for Development)

KIBABII UNIVERSITY

UNIVERSITY EXAMINATIONS
2021/2022 ACADEMIC YEAR

END OF SEMESTER EXAMINATIONS
YEAR ONE SEMESTER ONE EXAMINATIONS

FOR THE DEGREE OF BACHELOR OF SCIENCE MATHEMATICS (SMA)

COURSE CODE : CSC 111

COURSE TITLE : INTRODUCTION TO PROGRAMMING

DATE: 24/01/2022   **TIME:** 09:00 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   **[1 Mark]**

    II.   Interpreter   **[1 Mark]**

    III.   Variable   **[1 Mark]**

    IV.   Flow Chart   **[1 Mark]**

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 Loader and Linker   **[4 Marks]**

b) Differentiate between passing by value and passing by reference. Give examples

    [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 Two 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:

   i.   * * *   **[7 Marks]**

        **

        *

   ii.   4 4 4

        3 3 3

        2 2 2

        1 1 1   **[7 Marks]**

QUESTION FIVE [20 MARKS]

a) Describe the following terms

    I.Array   **[2 Marks]**

    II.Function Signature   **[2 Marks]**

    III.   Function Overloading   **[2 Marks]**

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]**

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