



(Knowledge for Development)

**KIBABII UNIVERSITY
(KIBU)**

MAIN CAMPUS

UNIVERSITY EXAMINATIONS

2021/2022 ACADEMIC YEAR

SPECIAL/SUPPLEMENTARY EXAMINATION

FIRST YEAR FIRST SEMESTER EXAMINATION

FOR THE DEGREE OF BACHELORS OF SCIENCE IN
(INFORMATION TECHNOLOGY)

COURSE CODE: BIT113

COURSE TITLE: FUNDAMENTALS OF PROGRAMMING

DATE: 22/07/2022 TIME: 2.00 P.M. – 4.00 P.M. 2HRS

INSTRUCTIONS TO CANDIDATES:

ANSWER QUESTIONS ONE AND ANY OTHER TWO.

Paper Consists of 3 Printed Pages. Please Turn Over



QUESTION ONE [COMPULSORY] (30 MARKS)

- Identify any two salient features of C programming languages. [2 Marks]
- Using relevant examples, explain the use of puts() and printf() functions. [4 Marks]
- Explain two differences between compilers and interpreters. [4 Marks]
- What would happen to X in this expression: X += 20; (assuming the value of X is 100)? [2 Marks]
- Explain the difference between actual and formal parameters. [2 Marks]
- Define an array and explain its importance of using arrays in programming. [3 Marks]
- Write down a typical declaration for an array in C that can store 20 values of type char. [1 Mark]
- There are a number of syntax errors in the following program. Fix the errors and rewrite the program. [2 Marks]

```
/* What's wrong with this program? */
#include stdio.h
int main();
}
int a, b, c /* Three integers */
a = 3
b = 4
c = a + b
printf("The value of c is %d" + C);
return 0;
}
```

- Suppose a, b, and c denote the lengths of the sides of a triangle. Then the area of the triangle can be calculated using the formula: [8 Marks]

$$\text{Area} = \sqrt{s(s-a)(s-b)(s-c)}$$

$$\text{where } s = \frac{a+b+c}{2}$$

Write a C program that prompts the user for the lengths of the sides of a triangle, computes and outputs the area of the triangle.

QUESTION TWO (20 MARKS)

- There are two simple ways in C to define constants. Using relevant examples, explain the two ways. [4 Marks]
- Explain the difference between function definition and function declaration. [2 Marks]
- Identify any two different ways of passing parameters to the functions. [2 Marks]
- Explain the difference between function definition and function declaration. [2 Marks]
- Write a function that takes three integers x, y and z and returns the minimum and maximum. [10 Marks]

QUESTION THREE (20 MARKS)

- By using valid example, write down the syntax of a variable definition in C. [2 Marks]
 - Using a valid example, discuss the usage of a switch statement. [4 Marks]
 - Distinguish between identifiers and comments as used in programming. Use valid examples to support your answer. [4 Marks]
- Write a C program that stores integers given by users in a one dimensional array. Your program should compute and display the sum and average of array. [10 Marks]

QUESTION FOUR (20 MARKS)

- a. Discuss pre-processors as used in programming. [2 Marks]
- b. Explain the problem with the following program statement. `void = 10;` [2 Marks]
- a. "It is a good programming practice to initialize variables properly". Discuss. [2 Marks]
- b. Describe the use **continue** statement in **for** loops and **while** and **do...while** loops. [4 Marks]
- c. Write a program that prompts a user to enter the age and height of students in a class of 35 and determine the average age and height. [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. The marks obtained by a student in 5 different courses are input by the user. Write a C program to calculate the average of courses and display the grade. The student gets a grade as per the following rules: [10 Marks]

Average	Grade
70-100	A
60-69	B
50-59	C
40-49	D
0-39	F