UNIVERSITY EXAMINATIONS
2022/2023 ACADEMIC YEAR

SPECIAL/SUPPLEMENTARY EXAMINATIONS
YEAR ONE SEMESTER ONE EXAMINATIONS

FOR THE DEGREE OF BACHELORS OF SCIENCE
(INFORMATION TECHNOLOGY)

COURSE CODE : BIT 113

COURSE TITLE : FUNDAMENTALS OF PROGRAMMING

SUPPLEMENTARY/SPECIAL

DATE: 07/08/2023 **TIME:** 11.00 AM. – 1.00 PM.

INSTRUCTIONS TO CANDIDATES

ANSWER QUESTION ONE AND ANY OTHER TWO QUESTIONS

QUESTION ONE [COMPULSORY] (30 MARKS)

a. Explain any two advantages of using assembly language to create programs. **[4 Marks]**
b. Distinguish between procedural and non-procedural programming languages. **[2 Marks]**
c. Explain any two advantages of using pseudocodes to design a program. **[4 Marks]**
d. Explain two advantages of structured programming. **[4 Marks]**
e. Design a flowchart for a program that prompts the user to enter a list of numbers until the user decides to end. The program should then display the count of positive, negative and zeros entered. **[8 Marks]**
f. Write a program that stores integers given by a user in a one-dimensional array. The program should display the sum and average of array, the smallest and the largest. **[8 Marks]**

QUESTION TWO (20 MARKS)

a. Discuss any three factors to consider when choosing a programming language. **[6 Marks]**
b. Describe the term array as used in programming. **[2 Mark]**
c. Explain the importance of using arrays in programming **[2 Marks]**
d. Write a C program that stores integers given by a user in a one-dimensional array. The program should display the sum and average of the array. **[10 Marks]**

QUESTION THREE (20 MARKS)

a. i. What is a variable? **[1 Mark]**
ii. Discuss the rules of naming a variable in C. **[3 Marks]**
b. Identify the two types of loops in programming and explain the difference between them. **[4 Marks]**
c. The table below shows a five-day schedule of trips for students in various departments in Kibabii University. Use it to answer the questions that follow.

Day	Destination
1	Tsavo
2	Mara
3	EPZ
4	Cocacola Plant
Other	Not applicable

i. Draw a flowchart to represent the logic of a program that could accept the day number and output the destination. **[6 Marks]**
ii. Using *switch statement,* write a C program to implement the program logic. **[6 Marks]**

QUESTION FOUR (20 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. Explain the role of each of the following header files in a C program. **[4 Marks]**
i. stdio.h
ii. math.h

d. Motego, a business man in Kibabii makes several calls per month. He wants to know his monthly spends on phone calls for effective planning. As an IT student he has approached you to help him. Assist him by writing a C program that prompts the user to input number of calls and calculate the monthly telephone bills as per the following rule:

Minimum KES 200 for up to 100 calls.
Plus KES. 2.00 per call for next 50 calls.
Plus KES. 1.50 per call for next 50 calls.
Plus KES. 0.50 per call for any call beyond 200 calls. **[10 Marks]**

QUESTION FIVE (20 MARKS)

a. Discuss any two differences between compilers and interpreters. **[4 Marks]**
b. Explain any two reasons for compiling a program. **[4 Marks]**
c. Describe the three elements that constitute a *for loop* in C programming Language. **[6 Marks]**
d. The marks obtained by a student first year BIT student in 3 different courses e.g., BIT 110, BIT 111 and BIT 113 are input by the user. Write a C program that calculates the average of courses and display the grade according to the Kibabii University grading scheme below.

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

[6 Marks]