KISII FONS SCIENTIAE UNIVERSITY
UNIVERSITY EXAMINATIONS
FIRST YEAR EXAMINATION FOR THE AWARD OF THE DIPLOMA IN INFORMATION TECHNOLOGY

SECOND SEMESTER 2023/2024
[JAN – APRIL, 2024]

DIT 0109: INTRODUCTION TO PROGRAMMING & ALGORITHMS

STREAM: Y1 S2   **TIME: 2 HOURS**

DAY: THURSDAY, 9:00 - 11:00 A.M.   **DATE: 18/04/2024**

INSTRUCTIONS

1. *Do not write anything on this question paper.*
2. *Answer question ONE (Compulsory) and any other TWO questions.*

QUESTION 1 (30 MARKS)

a) Define the following terms as used in computer programming   (10 marks)

   (i)   Coding
   (ii)   System testing
   (iii) Debugging
   (iv)   Syntax
   (v)   Source code

b) Differentiate between Machine Language, Assembly Language, and high-level languages.   (6 marks)
c) Janet, a computer programmer intends to create a program using C programming language. Advise her on the steps she should follow to come up the complete program   (4 marks)
d) Explain three types of errors in a program.   (6 marks)
e) Describe two types of program testing   (4 marks)

QUESTION 2 (20 MARKS)

a) Describe three approaches used in programming. (6 marks)
b) Outline two uses of comments in C Programming (2 mark)
c) Explain 3 types of program testing (6 marks)
d) With reference to computer programming, differentiate between (6 marks)
  - i) Syntax and runtime errors;
  - ii) Compiler and Assembler
  - iii) Programming and reprogramming

QUESTION 3 (20 MARKS)

a) The following program was created by a student. Use it to answer the question that follows. (5 marks)

```c
/*C PROGRAM TO COMPARE TWO INTEGERS*/
#include <stdio.h>
int main() {
int a, b
printf("Enter number a : ");
scanf("%d", &a);
printf("Enter number b : ");
scanf("%d", &b);
if(a > b)
printf("a is greater than b");
else
printf("a is not greater than b");
return 0
}
```

  - i. Study the above program and trace it.
  - ii. State types of errors in the program and give the possible output of the program.

b) Explain two reasons why documentation is important (4 marks)
c) Define the following program elements of structured programming languages. (6 marks)

  - i. Reserved words.
  - ii. Data types.
  - iii. Variables declaration.
  - iv. Expressions.

QUESTION FOUR (20 MARKS)

a) Describe two high level programming languages. (2 marks)
b) Distinguish the following terms as used in Pascal programming language:

(4 marks)

        (i)   Global variables and local variables;

        (ii)   Source code and object code.

c) Outline **four** data types used in C programming language citing an example in each case (4 marks)

d) John, a programmer at Waka Computer Solutions created that had several errors. Outline four types of errors he may have encountered. (5 marks)

QUESTION FIVE (20 MARKS)

a) Outline three advantages of machine language (3 marks)

b) Differentiate between: (6 marks)
    i. scanf and printf;
    ii. compound and control statements
    iii. \n and \t

c) Peter, a programmer wrote a program using Pascal/C programming language. Outline four elements that he is likely to include in the declaration part. (2 marks)

d) Explain two reasons for using functions in program (4 marks)