MURANG'A UNIVERSITY OF TECHNOLOGY

SCHOOL OF COMPUTING INFORMATION AND TECHNOLOGY

DEPARTMENT OF INFORMATION TECHNOLOGY

TVET EXAMINATION

2023/2024 ACADEMIC YEAR

FIRST YEAR FIRST SEMESTER EXAMINATION DIPLOMA IN COMPUTER SCIENCE (TVET)

ICT/CU/CS/CR/04/6/A – FUNDAMENTAL OF PROGRAMMING

DURATION: 3 HOURS

INSTRUCTIONS TO CANDIDATES:

1. Answer all questions in section A and two questions in section B
2. Mobile phones are not allowed in the examination room.
3. You are not allowed to write on this examination question paper.

ANSWER ALL QUESTIONS IN THIS SECTION

QUESTION ONE (30 MARKS)

   (a) Why is programming and how would you define it to someone new to the concept. (4 marks)

   (b) Why is programming considered a vital skill in today's digital age?   (4 marks)

   (c) What is a computer and how does it differ from an interpreter in programming.   (3 marks)

   (d) Explain java comments- what are they, why are they used? Give an example of a comment

                                                                    (3 marks)

   (e) Explain the concept of syntax in programme language.   (2 marks)

   (f) Define   (4 marks)

       i.   Class

       ii.   Object

       iii.   Method

       iv.   Variable

   (g) What is the difference between object and a class in java?   (3 marks)

   (h) Explain the difference between '===' and 'equals' in java.   (2 marks)

   (i) Difference between primitive and non-primitive data types.   (2 marks)

   (j) Define keyword in java and state the purpose of 'static' keyword in java?   (3 marks)

   (k) Declare variable named 'age' of type 'in' and assign the value '30' to it   (2 marks)

   (l) What is the purpose of if statement in java.   (2 marks)

   (m) What is the output of this code int $x = 5^0$,

                                  int $y = 7^0$,

                                  system out printin (x % y);   (3 marks)

   (n) What is the purpose of the scanner class in Java?   (2 marks)

   (o) Define Algorithm   (1 mark)

ANSWER ANY TWO QUESTIONS IN THIS SECTION

QUESTION TWO (20 MARKS)

   (a) What is object oriental programming (OOP)   (2 marks)

   (b) Explain the following fundamental principles of OOP   (8 marks)

       i.   Encapsulation

       ii.   Inheritance

       iii.   Polymorphism

       iv.   Abstraction

   (c) Discuss data types in the context of java programming and describe four of them.   (10 marks)

QUESTION THREE (20 MARKS)

   (a) Describe conditional statements in java programming and provide 3 examples.   (5 marks)

(b) What is the difference between "if statement and switch statement" in java. When would you use one over the other? (5 marks)

(c) Discuss the key phases of program development and why it is important to follow structural approach. (10 marks)

QUESTION FOUR (20 MARKS)

(a) Write a java code to create a simple calculator that can perform basic arithmetic operations on two members. (10 marks)

(b) Java is a widely used object oriented programming language known for its portability, simplicity and robustness. Discuss five of its features. (10 marks)