



GRETSA UNIVERSITY - THIKA

UNIVERSITY EXAMINATIONS JANUARY-APRIL 2025 SEMESTER

DIPLOMA IN IT/COMPUTER SCIENCE

COURSE CODE: DISD 043

COURSE TITLE: JAVA PROGRAMMING

DATE: APRIL 2025

TIME: 2 HOURS

INSTRUCTIONS TO CANDIDATES

1. SECTION A IS **COMPULSORY**.
2. SECTION B: ANSWER ANY OTHER **TWO** QUESTIONS.
3. **DO NOT** WRITE ANYTHING ON THIS QUESTION PAPER AS IT WILL BE AN EXAM IRREGULARITY.
4. ALL ROUGH WORK SHOULD BE AT THE BACK OF YOUR ANSWER BOOKLET AND CROSSED OUT.

CAUTION: *All exam rooms are under CCTV surveillance during the examination period.*

SECTION A: COMPULSORY

Question One

- a) Write a Java program that takes a user's age as input and prints:
"Child" if the age is less than 13.
"Teenager" if the age is between 13 and 18.
"Adult" if the age is 19 or older. [4 marks]
- b) Evaluate four rules for naming variables in Java. [4 marks]
- c) Differentiate between primitive and non-primitive data types in Java, and provide examples. [4 marks]
- Identify the correct data type for storing the following values in Java:
- i. A person's age [1 mark]
- ii. A large decimal number [1 mark]
- iii. A single character [1 mark]
- d) Evaluate three key principles of object-oriented programming [3 marks]
- e) Write a Java program that takes two numbers from the user and performs addition, subtraction, multiplication, and division on them. Print the results. [6 marks]
- f) Write a Java program using a while loop that prints all even numbers between 1 and 20. [6 marks]

SECTION B: ANSWER ANY TWO QUESTIONS

Question Two

- a) Define Object-Oriented Programming (OOP) and explain how it differs from procedural programming. [4 marks]
- b) Evaluate four concepts of OOP with real-world examples. [8 marks]
- c) Define a class in Java, and explain how it relates to an object [4 marks]
- d) Explain the purpose of constructors in Java. Provide a simple example of a class with a constructor. [4 marks]

Question Three

- a) Explain the concept of inheritance in Java, and outline the benefits of inheritance [6 marks]
- b) Write a Java program that:
- i. Asks the user to enter three integers, one at a time. [4 marks]
- ii. Uses a if...also to determine and display the largest and smallest numbers. [10 marks]

Question Four

- a) Discuss four categories of operators used in Java programming [8 marks]
- b) Write a Java program that accepts a student's exam score and prints the grade based on the following criteria [12 marks]
- 90 and above → Grade A
 - 80-89 → Grade B
 - 70-79 → Grade C
 - 50-69 → Grade D
 - Below 50 → Fail

Question Five

- a) Write a Java program that:
- i. Prompts the user to enter their first name. [3 marks]
 - ii. Prompts the user to enter their last name. [3 marks]
 - iii. Displays the length of the each of the entered names. [6 marks]
 - iv. Concatenates the first name and last name to display the user's full name. [8 marks]