

CHUKA



UNIVERSITY

UNIVERSITY EXAMINATIONS

EXAMINATION FOR THE AWARD OF DIPLOMA IN COMPUTER SCIENCE

COSC 0244: FUNDAMENTALS OF OBJECT ORIENTED PROGRAMMING

STREAMS: DIP. COMP SCI.

TIME: 2 HOURS

DAY/DATE: TUESDAY 21/09/2021

2.30 P.M. – 4.30 P.M.

INSTRUCTIONS:

- Answer question **ONE** and **TWO** other questions
- Do not write anything on the question paper
- This is a **closed book exam**, No reference materials are allowed in the examination room
- There will be **NO** use of mobile phones or any other unauthorized materials
- Write your answers legibly and use your time wisely.
- Marks are awarded for clear and concise answers.

SECTION A (Answer ALL questions)

QUESTION ONE

- Explain what you understand by the following concepts (10 marks)
 - Object
 - Class
 - Package
 - Interface
 - Method
- Outline the basic structure of a java program (4 marks)
- Which method begins the execution of java applications? Give its full declarations (3 marks)
- Differentiate between method overloading and method overriding? (2 marks)

- e. Differentiate between Primitive Types and Reference Types as used in Java variables (4 Marks)
- f. i) Name the interface used to connect to databases using Java? (1 Mark)
ii) Denote from which package the connection comes from. (1 mark)
- g. Explain the importance of abstract classes in java programming (2 Marks)
- h. Outline at least three access modifiers you know that are used in Java Programming (3 Marks)

SECTION B – ANSWER ANY TWO QUESTIONS

QUESTION TWO (20 MARKS)

- a) Write code to demonstrate the use of an Array in Java Programming. (4 marks)
- b) Define constructors and using an example, show why they are useful in Java programming (4 Marks)
- c) Explain the following terms in object oriented programming (12 marks)
 - (i) Inheritance
 - (ii) Polymorphism
 - (iii) Encapsulation
 - (iv) Abstraction

QUESTION THREE (20 MARKS)

- a) Write a Java program that calculates the grade of a student based on the marks entered by user in each subject. Program prints the grade based on this logic. (10 Marks)
If the average of marks is ≥ 80 then prints Grade 'A'
If the average is < 80 and ≥ 60 then prints Grade 'B'
If the average is < 60 and ≥ 40 then prints Grade 'C'
else prints Grade 'D'
- b) Name and Explain three variable types that can be created in an OOP class (6 Marks)
- c) State FOUR Advantages of Object Oriented Programming. (4 Marks)

QUESTION FOUR (20 MARKS)

- a) Distinguish between repetitive statements and selective statements as used in Java Programming Control Structures. For Each , give at least 2 examples of such statements (6 Marks)
- b) Explain the following types of Operators and show an example of how it is applied in Java Programming
 - i) Increment Operator (3 Marks)
 - ii) Decrement Operator (3 Marks)
 - iii) Compound Assignment Operator (3 Marks)
 - iii) Logical Operator (3 Marks)
- c) Define pseudocode as used in Java Programming? (2 Marks)

QUESTION FIVE (20 Marks)

- a) Write a Java Program that has an Instance Variable, a set Method and a Get Method (6 Marks)
 - b) Demonstrate a Java Class that displays all integers from 1 to 10 using the following Counter-controlled repetition statements: (8 Marks).
 - i) For Loop
 - ii) While Loop
 - c) Explain the difference between break and continue Statements as used in Java control structures and write example code for each. (6 Marks)
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