

CHUKA



UNIVERSITY

UNIVERSITY EXAMINATIONS

**SECOND YEAR EXAMINATION FOR THE AWARD OF DIPLOMA IN
COMPUTER SCIENCE**

COSC 0244: FUNDAMENTALS OF OBJECT-ORIENTED PROGRAMMING

STREAMS: DIP. COMPSCI Y2S2

TIME: 2 HOURS

DAY/DATE: TUESDAY 5/12/2017

11.30 A.M – 1.30 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.**

QUESTION ONE (30 Marks)

- a. Define each of the following as used in object-oriented programming: (6 Marks)
 - i. Inheritance
 - ii. Encapsulation
 - iii. Abstraction
- b. Distinguish between each of the following object-oriented programming concepts: (6 Marks)
 - i. Generalization and Specialization
 - ii. Polymorphism and Dynamic Binding
 - iii. Classification and Exemplification
- c. State and explain three types of variables that can be created in a class (6 Marks)
- d. Write a Java Program that implements a constructor, getter and a setter (6 Marks)
- e. Write a Java Program that demonstrates method overloading (6 Marks)

SECTION B (Answer any TWO questions)

QUESTION TWO (20 Marks)

- a. Using Java Code, explain the function of the **break** and **continue** statements to alter the flow of control. (10 Marks)

- b.
 - i. Declare and initialize an array variable in Java named **months** with the 12 months of a year (2 Marks)
 - ii. Using a for loop, write code to output the contents of the **months** array variable. (2 Marks)
- c. Discuss the merits of object oriented programming paradigm over structured programming. (6 Marks)

QUESTION THREE (20 Marks)

- a. Define the term package. (4 Marks)

- b. Provide THREE examples of Java packages and their functions (6 Marks)

- c. Discuss the basic syntax rules of a JAVA program (10 Marks)

QUESTION FOUR (20 Marks)

- a. Define and explain the role of an interface in a JAVA program (6 Marks)

- b. Write JAVA syntax to illustrate each of the following program controls (10 Marks)
 - i. While
 - ii. If ... Else
 - iii. Nested IF
 - iv. For
 - v. Switch

- c. List FOUR primitive data types (4 Marks)

QUESTION FIVE (20 Marks)

- a. Explain the differences between an applet and a standalone JAVA application. (10 Marks)

 - b. Discuss the lifecycle of a JAVA applet (10 Marks)
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