



# TECHNICAL UNIVERSITY OF MOMBASA

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## INSTITUTE OF COMPUTING AND INFORMATICS

### DEPARTMENT OF COMPUTER SCIENCE & INFORMATION TECHNOLOGY

#### UNIVERSITY EXAMINATION FOR:

#### BACHELOR OF SCIENCE IN INFORMATION TECHNOLOGY

#### ICS 2104: OBJECT- ORIENTED PROGRAMMING I

#### END OF SEMESTER EXAMINATION

**SERIES:** APRIL 2016

**TIME:** 2 HOURS

**DATE:** Pick Date Select Month Pick Year

#### Instructions to Candidates

You should have the following for this examination

*-Answer Booklet, examination pass and student ID*

This paper consists of **FIVE** questions. Attempt question ONE (Compulsory) and any other TWO questions.

**Do not write on the question paper.**

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#### **Question ONE (30 Marks)**

a) Define the following terms:

i. Source code (2 Marks)

ii. Object code (2 Marks)

b) Briefly discuss TWO methods used to translate a program written in one of the high-level languages to machine language. (4 Marks)

c) List and briefly explain atleast FOUR defining characteristics of Java programming. (8 Marks)

d) Briefly discuss any FOUR concepts of Object-Oriented Programming. (8 Marks)

e) Discuss the function of the following methods:

i. Constructor (3 Marks)

ii. Destroy() (3 Marks)

**Question TWO (20 Marks)**

- a) Differentiate between the following :-
  - i. Actual parameters and Formal parameters (4 Marks)
  - ii. Base class and Derived class (4 Marks)
  - iii. Simple data types and composite data types (4 Marks)
- b) Write a program using JAVA programming language that prompts the user to enter two integers then prints the difference, product and modulus of the two integers. (8 Marks)

**Question THREE (20 Marks)**

- a) Write a statement that declares an array named marks of size 5 and initialize the array elements with 5 floating point values of your choice. (4 Marks)
- b) Write a program that accepts marks in four subjects, computes the average and awards an order of merit based on the average mark using the following classification. (16 Marks)

Average mark	Order of Merit
75-100	Distinction
65-75	Credit
50-65	Pass
0-50	Fail

**Question FOUR (20 Marks)**

- a) Using an appropriate example, differentiate between Do...while and while... statement. (6 Marks)
- b) Write a program that gets the sum of all numbers between 100 and 300 that are divisible by 5 using the:
  - i. do...while loop (4 Marks)
  - ii. for loop (4 Marks)
- c) What are the similarities and differences between a class and an object? (6 Marks)

**Question FIVE (20 Marks)**

Today, Computer languages are categorized according to the approach they use to solve a problem. We divide computer languages into four paradigms. Briefly discuss the four programming paradigms. (20 Marks)

**-END-**