



# **THE MOMBASA POLYTECHNIC UNIVERSITY COLLEGE**

(A Constituent College of JKUAT)

*Faculty of Engineering & Technology*

**DEPARTMENT OF COMPUTER SCIENCE & INFORMATION TECHNOLOGY**

DIPLOMA IN INFORMATION TECHNOLOGY – DICT/JAN2010

DIPLOMA IN INFORMATION COMMUNICATION TECHNOLOGY – DICT/JAN2010

**ECS 2203: QUANTITATIVE TECHNIQUES I**

SPECIAL/SUPPLEMENTARY EXAMINATION

**SERIES: MAY/JUNE 2012**

**TIME: 2 HOURS**

## **Instructions to Candidates:**

You should have the following for this examination

*Answer Booklet*

This paper consist of **FIVE** questions

Answer any **THREE** questions. Question **ONE** is compulsory

Maximum marks for each part of a question are as shown

This paper consists of **TWO** printed pages

### Question 1 (Compulsory - 30 marks)

- a) State any **SIX** components of the Java Applications Programming Interface (API) (6 marks)
- b) Using examples, explain how the following can be done in java:  
i) Encapsulation  
ii) Data hiding  
iii) Inheritance  
iv) Polymorphism (16 marks)
- c) Write a statement for declaring and initializing a constant in java (4 marks)
- d) Explain the following java extracts:  
Float mynumber = 3.56;  
int x = (int) mynumber (4 marks)

### Question 2 (20 marks)

When ordering new videotapes from a supplier, the store manager creates a purchase\_order, fills\_in the date, the supplier's name, address, and enters a list\_of\_videotapes to be ordered. The purchase order is added to a permanent list of purchases. When one or more video tapes are received from a supplier, a clerk locates the original purchase order and makes a record of each tape that was received. A record of the videotape is then added to the store's inventory. When all tapes listed on a particular purchase order have been received, the manager sends a payment to the supplier and the purchase order is given a completion date. Define the classes and their methods from this illustration (20 marks)

### Question 3 (20 marks)

Write a program in java that prompts a user to enter an integer, double and string inputs and then outputs the values to the screen. The program should use the Scanner methods for reading from the input console. Comment on your program (20 marks)

### Question 4 (20 marks)

Write an applet with the following layout and explain how to save and execute it. (20 marks)

**USERNAME**

**PASSWORD**

### Question 5 (20 marks)

Write a program in java that will asks a user to input any **THREE** numbers and adds them. The program should take care of any errors that may be input. Comment on your program (20 marks)