# THE MOMBASA POLYTECHNIC UNIVERSITY COLLEGE

## (A Constituent College of JKUAT)

## *Faculty of Engineering & Technology*

### DEPARTMENT COMPUTER SCIENCE & INFORMATION TECHNOLOGY

BACHELOR OF SCIENCE IN INFORMATION TECHNOLOGY - BSCIT/MAY2011/J_FT

### ICS 2104: OBJECT ORIENTED PROGRAMMING 1

SPECIAL/SUPPLEMENTARY EXAMINATION

### SERIES:  FEBRUARY/MARCH 2012
### TIME:  2 HOURS

**Instructions to Candidates:**
You should have the following for this examination
  -   *Answer Booklet*
This paper consist of **FIVE** questions in **TWO** sections **A** & **B**
Answer question **ONE (COMPULSORY)** and any other **TWO** questions
Maximum marks for each part of a question are as shown
This paper consists of **TWO** printed pages

---

## SECTION A (COMPULSORY)

### Question One

a)  Define the following terms:                                                         [8 marks]
   - Class
   - Object
   - Inheritance
   - Polymorphism

b)  Illustrate the structure of an object oriented Program.                   [3marks]
c)  Outline any **FIVE** benefits of Object Oriented Programming.      [5 marks]
d)  Write appropriate declarations, assigning initial values for each of the following:
   - Integer variable: index
   - Unsigned integer variable: cust_num
   - Double-precision variables: gross, tax, net                    [3 marks]

e)  Explain the meaning of each of the following declarations.

---

- Int *a, *b, c;
- Double *f;
- Char *d, e;

[3 marks]

f) Write the header file needed to use the following functions.
- sqrt ()
- random ()
- islower ()                                                                [3 marks]

g) i.  Explain the term ARRAY

  ii. With suitable examples, illustrate the **ONE** and **TWO** dimensional array declarations

[5 marks]

## SECTION B   Answer any TWO questions

### Question Two

a) Write a program to calculate the area of a circle using the WHILE LOOP. The program should store the values of radius and the calculated areas in arrays radius and area respectively, and then display those values.                                    [12 marks]
b) Explain any **FOUR** statements you have used in the above program.      [8 marks]

### Question Three

a) Explain with suitable code to illustrate the **FOUR** jump statements used in Java      [8 marks]

b) Write a program to illustrate the switch statement, the program should display the message **To append a record, To modify a record, To delete a record, To exit the menu, or invalid selection,** depending on whether the value entered for the prompt Enter selection: is A, M, D, X, or some other character.                                            [12 marks]

### Question Four

a) Write a program to read an arbitrary number of temperature readings into the array temp using pointers. Then again using pointers, it computes the average temperature. The program should terminate when the value entered for temperature is 0.                          [12 marks]

b) (i)  With suitable diagrams explain the concept of Single indirection and multiple indirection as used in pointers.

  (ii) Write a code to illustrate the use of multiple indirection. The code should output the value 7 which id stored in the variable num.                                    [8 marks]

### Question Five

a) Write a program to convert a lower case character to an upper-case using a programmer- defined function.                                                                [10 marks]
b) Write a program that will sort a list of n<maxsize integer numbers entered by the user.

[10 marks]