TECHNICAL UNIVERSITY OF MOMBASA

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: AUGUST 2017

TIME: 2 HOURS

DATE: Pick Date Sep 2017

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.

Question ONE (30 Marks)

a) Define the following terms:

    i. Object   (2 Marks)

    ii. Class   (2 Marks)

b) Distinguish between the following object oriented features:

    i. Inheritance and Encapsulation   (4 Marks)

    ii. Dynamic binding and Message passing   (4 Marks)

    iii. Constructors and Destructors   (4 Marks)

c) Indicate whether the variable names used in the declaration statements below are valid or not. If not explain:

    i. int 4rever;   (1 Mark)

    ii. float distance;   (1 Mark)

d) List and briefly explain atleast FOUR defining characteristics of Java programming.   (4 Marks)

e) Differentiate between the following :-

    i.   Actual parameters and Formal parameters   (4 Marks)

    ii. Base class and Derived class   (4 Marks)

Question TWO (20 Marks)

a) define and explain where the following variables can be used:

    i.   Instance Variables   (4 Marks)

    ii. Class Variables   (4 Marks)

    iii. Local Variables   (4 Marks)

b) Based on the following table, identify the applicable data type for variables Staff ID, Name, Salary and Taxable respectively.

Staff ID	Name	Salary ($)	Taxable
3929	John Martin	4500.00	Yes
3204	Ruth Danny	956.50	No

                                                             (4 Marks)

c) List the THREE most common logical operators and explain their use.   (4 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) Explain the difference between passing variables by value and passing by reference.   (4 Marks)

b) Write the code for a function named FindHeight that will calculate the total number of inches based on the height of a person when given the height in feet (ft) and inches (in). For example, if a person is 5ft 10in. (Note: 1 foot = 12 inches). The function takes two parameters (intFeet and intInches) and will return the result to the main function which will display to the user.

(16 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-