TECHNICAL UNIVERSITY OF MOMBASA

INSTITUTE OF COMPUTING AND INFORMATICS

DEPARTMENT OF COMPUTER SCIENCE & INFORMATION TECHNOLOGY

UNIVERSITY EXAMINATION FOR:

BACHELOR OF SCIENCE IN INFORMATION TECHNOLOGY

BIT2203: ADVANCED PROGRAMMING

END OF SEMESTER EXAMINATION

SERIES: DECEMBER 2016

TIME: 2 HOURS

DATE: 14 Oct 2016

<u>**Instructions to Candidates**</u>
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

a) Suppose we wish to model an application for registering students in a University academic semester. Identify

    i.   Three classes for the model

                   (4marks)

    ii. At least three attributes for each class

                   (6marks)

    iii. Write a java implementation for any one of the above classes

                   (3 marks)

b) Briefly explain the following terms as used in programming:

    i.   setters
    ii. Constructor

                   (4 marks)

c) Explain the term design patterns

                   (2 marks)

d) State three categories of design patterns

(6 marks)

e) Explain three techniques used in java programming to promote modularity

(5 marks)

Question Two

Describe the FIVE types of programming paradgms showing clearly the weakness of each

(20 marks)

Question Three

Illustrate the concept of generic program by writing a generic program in java with two functions max and swap. Max takes in two parameters and gives the largest value while swap takes in two parameters and exchange their memory locations. The program should prompt the user to enter the two values. Comment on your program.

(20 marks)

Question Four

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 Five

a) Develop a java class called lecturer with following members :

Data members: staffno., name, contact

Method members: getters, setters, constructor

(10 marks)

b) Using the class in Question 5(a) as an example explain and show how modular programming is achieved using an interface in java

(10 marks)