Ministry of Higher Education and Scientific Research
University of Technology
Computer Science Department
Final Exam 2015-2016

Date: 24/05/2016
Time: 3 Hours
Lecturer: MSc H. F. Hasan

Subject: OOP
Class: Second Level
Branches: Networks, Multimedia, Security.

Note: Answer Five Question Only

Q1 answer with true or false correcting false statements:

1. You cannot change the value of a variable that is defined as final.
2. The use the = = operator to compare strings.
3. Using add() and remove() methods to add and remove array list elements.
4. Methods can accept limited number of passing parameters.
5. Triggered object should be declared into service class main method.

Q2 Consider these methods:

```
Public static double f (double x) {return g(x) + Math.sqrt (h(x)); }
Public static double g (double x) {return 4 * h(x); }
Public static double h (double x) {return x * x + k(x) - 1; }
Public static double k (double x) {return 2 * (x + 1); }
```

Without actually compiling and running a program, determine the results of the
Following method calls.

1. double x1 = f (2);
2. double x2 = g (h (2));
3. double x3 = k (g(2) + h(2));
4. double x4 = f (0) + f (1) + f (2);
5. double x5 = f (-1) + g (-1) + h (-1) + k(-1);

Q3 What is encapsulation? Why is it useful? Give an example stating the benefit of it.

Q4 Using array list, write a program that define three array lists, first array list contain the salary of 5 employee and second array list contain their bonuses in sequence. Do the following:

1. Fill first array list with 5 salaries.
2. Fill second array list with 5 bonuses.
3. Check if either salary or bonus is below $500 then remove entries from both Array lists.
4. Calculate tax of 10% on the net amount of each salary and bonus.
5. Fill third with the final results
6. Print the three array lists.

Q5 Write a program that contain service and active classes in which Active class named as **Enquiry** contain one methods sendData(). Services class named as **PhoneBook** that contains four methods named in sequence as customerName(), CustomerAddress(), CheckCustomer() if it available. The link with others shall be via methods.

Q6 Using polymorphism and inheritance: write a program that defines **Question** class and two of its child type's classes **ChoiceQuestion** in which each child has its own privacy. **QuestionShow** is third class that applying the final results

Good Luck

Examiner: H.F. Hasan