Ryerson University
Department of Electrical & Computer Engineering
COE318

Midterm **Oct. 21, 2013**

Name:_____ **Student number:_____**

Time: **60 minutes**
Circle the name of your Professor: E. Bagheri, T. Yang, O. Das
This is a closed-book exam. If in doubt on any question, then you must clearly state your own assumption(s).

Question 1. (7 marks)
Fill in the blanks in the following class definition:

```
public class AClass {

   private double [          ] ;

   public void setValue( [          ] var ) {

       [                    ] ;
   }

   public double getValue( ) {

      return [          ] ;
   }

   public [          ]( double val )  { //constructor

      valueVar = val;
   }
}
```

Answer:

```
public class AClass {
   private double  valueVar ;
   public void setValue( double var ) {
       valueVar = var ;
   }
   public double getValue( ) {
      return  valueVar ;
   }
   public  AClass( double val )  { //constructor
      valueVar = val;
   }
```

```
}
```

Question 2. (8 marks)
What is the output when the following is executed?

```
public class Test{
   private int localVar;

   public Test(){
      localVar=15;
   }

   public String toString() {
      return "localVar is: " + localVar;
   }

   public static void main(String[] args) {
      int a = 6;
      double d = 7.4;
      Test t = new Test();
      System.out.println(t);
      t.someFunc(a,d);
      System.out.println(a + " " + d);
      Test p = new Test();
      p.otherFunc(t);
      System.out.println(t);
      System.out.println(p);
   }

   public double someFunc(int a, double b) {
      a += b;
      b--;
      return b/2;
   }

   public void otherFunc(Test myObject) {
      myObject.localVar=8;
   }
}
```

Answer:

localVar is: 15
6 7.4
localVar is: 8
localVar is: 15

Question 3. (15 marks)

Complete the following class by adding suitable code snippets in the placeholders such that the following will happen if your completed code is executed:

a) Placeholder A: checks if this person has the same `age` as the argument `p`.

b) Placeholder B: adds the `freshman` to the ArrayList.

c) Placeholder C: prints the size of the ArrayList.

d) Placeholder D: prints the name of the first person in the ArrayList.

```
import java.util.ArrayList;
public class Person {
   private int age;
   private String name;

   public Person(int a, String n) {
     age=a;
     name=n;
   }

   public boolean comparePerson(Person p) {
      [                                    ]  //Placeholder A
         return true;
      return false;
   }

   public static void main(String[] args) {
      ArrayList<Person> list = new ArrayList<Person>();
      Person freshman = new Person(21, "Ella Smith");

      [                                    ]  //Placeholder B

      [                                    ]  //Placeholder C

      [                                    ]  //Placeholder D

   }
}
```

[**Hint**: Some of the methods in the class `ArrayList` of E type objects are:

`public boolean add(E e)`

Appends the specified element to the end of this list.

`public E get(int index)`

Returns the element at the specified position in this list.

`public int size()`

Returns the number of elements in this list.]

Answer:

```
import java.util.ArrayList;
public class Person {
   private int age;
   private String name;

   public Person(int a, String n) {
      age=a;
      name=n;
   }

   public boolean comparePerson(Person p) {
      if(age == p.age)                          //Placeholder A
         return true;
      return false;
   }

   public static void main(String[] args) {
      ArrayList<Person> list = new ArrayList<Person>();
      Person freshman = new Person(21, "Ella Smith");

      list.add(freshman);                       //Placeholder B

      System.out.println(list.size());          //Placeholder C

      System.out.println(list.get(0).name);     //Placeholder D

   }
}
```

Question 4. (5 marks)
There will be five lines of output if we run the main method of the Foo class. Please write those five lines.

```
public class Foo {
   private int[] arr;

   public Foo(int i) {
      arr = new int[i];
      for(int j = 0; j < i; j++) {
         arr[j] = j*2;
      }
   }

   public void h() {
      for(int j = arr.length-2; j >= 0; j--) {
         arr[j] = arr[j+1] + 3;
      }
   }

   public static void main(String[] args) {
      Foo f = new Foo(5);
      f.h();

      for(int j = 0; j < 5; j++) {
         System.out.println( f.arr[j] );
      }
   }
}
```

Answer:
20
17
14
11
8