Quiz 5 **Name: _____**

1. **[4 marks]** Given the classes:

```
// Parent.java
public class Parent {
   public Parent() {
       this("[apple]");
   }

   public Parent(String word) {
       System.out.print(word);
   }
}
```

```
// Child.java
public class Child extends Parent {
   public Child() {
       this("[orange]");
   }

   public Child(String word) {
       super(word);
       System.out.println("[pear]");
   }
}
```

What is the output when you run the Test class?

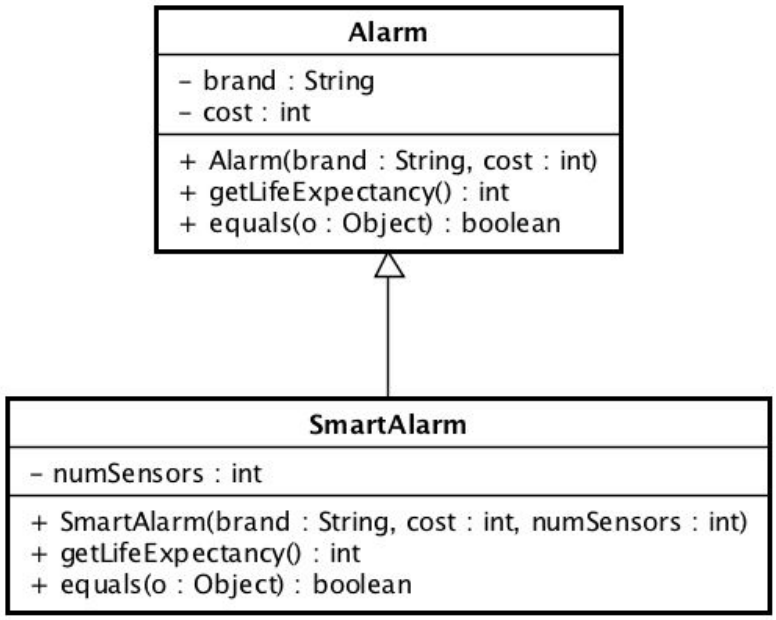
```
public class Tester {
   public static void main(String[] args) {
       Child c = new Child("[durian]");
       System.out.println("--");
       Child c2 = new Child();

   }
}
```

Answer:

[durian][pear]
--
[orange][pear]

2. Given the following class diagram:



Implement the SmartAlarm class.

- **[2 marks]** Has a specific constructor that initialize the attributes to the values passed in.
- **[2 marks]** Override the method `getLifeExpectancy()` in `Alarm`. The life expectancy of a `SmartAlarm` is 5/7 of a `Alarm`'s expectancy. Truncate all decimal places.
- **[2 marks]** Overrides the `equals` method in java.lang.Object. Two `SmartAlarm` objects are equal if they have they have the same number of sensors and superclass' `equals` method returns true.

Answer:

```
public class SmartAlarm extends Alarm {
   private int numSensors;

   public SmartAlarm(String brand, int cost, int numSensors) {
       super(brand, cost);
       this.numSensors = numSensors;
   }

   @Override
   public int getLifeExpectancy() {
       return  super.getLifeExpectancy() / 7 * 5;
   }


   @Override
   public boolean equals(Object o) {
       if (!(o instanceof SmartAlarm))  {
           return false;
       }
       SmartAlarm that = (SmartAlarm) o;

       return super.equals(o) && numSensors == that.numSensors;
   }

}
```