

## Sample JAC444 Midterm Test 1 - 2015

### A. Theory (2 marks)

What are the differences between `this` and `this()` ?

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### B. Code – Understanding 12 marks = 3 questions \* 4 marks

1. Read the following Java program. Does it compile? If it does not, explain what the errors are. If the code compiles, write the output

```
class Value {
    public int i = 2;
}

public class MyInteger {

    public static void main(String argv[]) {
        MyInteger mine = new MyInteger();
        mine.up();
    }

    public void up() {
        int i = 4;
        Value v = new Value();
        v.i = 9;
        down(v, i);
        System.out.print(" " + v.i);
    }

    public void down(Value v, int i) {
        i = 3;
        v.i = 5;
        Value val = new Value();
        v = val;
        System.out.print(i + " " + v.i);
    }
}
```

```
}
```

**The Java program does not compile – Errors:**

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**Output:**

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2. Read the following Java program. Does it compile? If it does not, explain what the errors are. If the code compiles, write the output

```
interface Second<T> {  
    public void m(T t);  
}  
  
public class When {  
    public static void main(String[] args) {  
        final int i = 5;  
        Second<String> second = s -> System.out.println('y' - 'x' + s + i);  
        second.m("X");  
    }  
}
```

**The Java program does not compile – Errors:**

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**Output:**

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3. Read the following Java program. Does it compile? If it does not, explain what the errors are. If the code compiles, write the output

```
abstract class Fruit {  
    abstract public void name();  
    public float price() {  
        return 0.0;  
    }  
}  
  
public class Apple extends Fruit {  
    public static void main(String argv[]) {  
        Apple e = new Apple();  
    }  
}
```

```

        e.name();
    }

    public void name() {
        System.out.println("Honeycrips");
    }

    public float price() {
        return 10.0f;
    }
}

```

**The Java program does not compile – Errors:**

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**Output:**

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### **C. Code – Development** (6 marks)

Create an interface **Drivable** that defines a method called **drive** that takes an argument of type **String** and returns a **Boolean**. Create an interface **Valuable** that inherits from **Drivable** and defines a method called **price** that takes an argument of type **String** and returns a **Double**.

Create a class **Car** that defines a car object. The **Car** class must have fields such as brand, price, and onGas a Boolean value set to true if a car runs on gas. The **Car** class must implement the **Valuable** interface. The **drive** method takes the argument the car's brand and returns true if the car runs on gas, otherwise returns false. The method **price** takes as argument the car's brand and returns its price if the car runs on gas, otherwise throw an exception. You have to define that exception. Besides, you have to implement in your class methods such as **toString**, **hashCode**, **equals** inherited from **Object** class.

*Comment your code and follow Java coding conventions. Write setter and getter only for one field (for instance **title**)*

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