1. What are the signs of bad design? Explain in one or two sentences each of them.

2. Mention a design pattern which is an example of using containment over inheritance. Explain.

3. What’s the difference between class scope and object scope in design pattern? Which one is more popular and why?
4. Give a code example (in a language of your choice) where using RTTI will violate OCP. Also give an example where using it will not violate OCP. Explain in one or two sentences why one violates while the other doesn’t.
5. (a) What are the immediate draw backs of using a mediator pattern?

(b) How can you avoid that draw back?

(c) What design principle is used to avoid the draw back?

6. What is the purpose of the composite pattern? What are some of the problems or side-effects of using that pattern?

7. I have a class

```java
class Car {
    public void drive() { … burn fuel … }
    public void fillGas() {
        …
    }
}
```

I would like to write

```java
class ElectricCar extends Car {
    public void drive() { … use battery … }
    public void fillGas() {
        throw new NotImplementedException();
    }
    public void replaceBattery() {
        …
    }
}
```

Is that a good idea? Explain.
8. (a) What is the purpose of Singleton pattern? (b) Show a code example. (c) Why bother writing a singleton if I can simply have a class with static methods? (d) What are some of the disadvantages of using the singleton? (e) How does Monostate pattern related to and differ from singleton?