

Study Quiz #4

1. As a rule, if you use **new** or **new[]** in your constructor to allocate memory dynamically, you will need to implement three other methods to ensure your class is safe and works correctly. What are these three methods?
2. Name 4 implicit member functions that C++ automatically provides for a class (if you don't provide one.)
3. Given the class *Hoo* below, which methods of the class will the compiler generate for you? If the compiler generates the method, write **YES**, otherwise, write **NO**.

```
class Hoo
{
    private:
        int &x; // reference
};
```

- a) default constructor
- b) default destructor
- c) copy constructor
- d) conversion constructor
- e) assignment operator
- f) conversion operator

```
class Fred
{
    public:
        explicit Fred(int x);
    private:
        int x_;
};
```

4. Given the *Fred* class above, indicate whether or not the following statements compile. Write **C**, if the code compiles, and **NC** if it does not compile. If it doesn't compile, give a brief (one sentence) reason why.

- a) _____ Fred *f1[] = {1, 2, 3};
- b) _____ Fred *f2[5];
- c) _____ Fred *f3 = new Fred(5);
- d) _____ Fred f4;
- e) _____ Fred f5[] = {1, 2, 3};
- f) _____ Fred *f6;
- g) _____ Fred f7[5];

5. Given a class named *Foo*, give the proper prototype/declaration for the 3 methods listed below. You don't need to know anything about the *Foo* class to provide the prototypes.

- a) copy constructor
- b) copy assignment operator (operator=)
- c) output operator (operator<<)