CSE 143 Quiz 4, April 24, 2001 Sample Solution

Here is the definition of a simple class. The bodies of all methods have been replaced with a print statement so we can trace the order in which they are called.

```
class Test {
public:
        // constructor
        Test() { cout << " cons "; … }

        // copy constructor
        Test(const Test &other) { cout << " cc "; … }

        // assignment
        Test & operator=(const Test &other) { cout << " op= "; … }

        // destructor
        ~Test() { cout << " byebye "; … }
};
```

Now consider the following program that uses class Test:

```
// = copy of obj
Test dup(Test obj) {
        return obj;
}

// main program
int main() {
        Test it;
        Test that = it;
        it = dup(that);

        return 0;
}
```

What happens when this program runs? Show the messages that get printed, and, to help both you and your TA understand your answer, identify which object is associated with the message (i.e., cons that; op= assignment to that, etc.)

```
cons   (construct it)
cc     (construct that)
cc     (construct obj - function parameter)
cc     (construct function result temporary)
byebye   (obj destructor)
op=    (assignment to it)
byebye   (function result destructor)
byebye   (that destructor)
byebye   (it destructor)
```

Since we haven't talked in detail about the ordering of destructors, any order for the last three lines would be fine.