

CS 391
Object Oriented Programming
Review for Exam I

1. Explain (with a written explanation) the error and make the correction, if one exists, in the following code:

```
class C {  
public:  
    void f( ) { x = 0 }  
private:  
    int x;  
};  
int main( )  
{  
    int *ptr;  
    C c1;  
    c1.x = 2;  
    return 0;  
}
```

2. Given the following class:

```
class M1{  
public:  
    void fm( ) {cout << "the initial value is: " << x << endl; }  
private:  
    int x;  
};  
int main ( )  
{  
  
    return 1; }
```

- a.) In main write a declaration to define an object of type class M1.
- b.) Write a method to add 500 to the variable x and call this method from main().
- c.) Write a method to print the new value of x + 500.
- d.) Write a constructor method to initialize x at 0.

3. Explain (with a written explanation) the error and make the correction, if one exists, in the following code:

```
class C {  
public:  
    void g( ) { /*....*/ }  
private:  
    float F;  
};  
int main ( )  
{  
    C c2;  
    g( );  
    return 0; }
```

4. Explain (with a written explanation) the error and make the correction, if one exists, in the following code:

```
class C {  
public:  
    void g( ) { /*....*/ }  
    float C( ) {  
        F = 0.0;  
        return F; }  
private:  
    float F;  
};  
int main ( )  
{  
    C c2;  
    return 0; }
```

5. a.) What is a class?
 b.) What are the benefits of using classes? Explain.
 c.) Why use a class instead of a struct?
 d.) Why do you think we should make data private?
 e.) Should we make all our methods private too? Why or Why not?
6. Why was the concept of Object-Oriented Programming developed?
7. What is meant by *encapsulation*? Discuss how it relates to the notion of abstract data types.
8. In terms of OOP, what is an *attribute*?

9. From your StudentClass program, give 5 examples of attributes.
10. Given a class, how many objects can you create?
11. If you said “many” to question 10. Then write c++ code that will declare many objects (name your class, you can assume it's declared).