

COP 3330 Spring 2026 Final Exam Part A – Code

Directions: Determine the output the following program will print out when executed and put the output on the answer sheet. Please submit the answer sheet and keep this code handout.

```
class A {  
    protected int x;  
  
    public A() {  
        System.out.println("A()");  
        x = 3;  
    }  
  
    public A(int a) {  
        System.out.println("A(int a)");  
        x = a;  
    }  
  
    public void f() {  
        x++;  
    }  
  
    public void f(int a) {  
        x+=a;  
    }  
  
    public String toString() {  
        return "A "+x;  
    }  
}  
  
class B extends A {  
    protected int y;  
  
    public B(int b) {  
        super();  
        System.out.println("B(int b)");  
        y = b;  
    }  
  
    public B(int a, int b) {  
        super(a);  
        y = b;  
        System.out.println("B(int a, int b)");  
    }  
  
    public void f(int a) {  
        y+=a;  
    }  
  
    public String toString() {  
        return "B "+x+" "+y;  
    }  
}
```

```

public class C extends B {

    private int z;

    public C(int c) {
        super(c);
        z = x+y;
        System.out.println("C(int c)");
    }

    public C(int a, int b, int c) {
        super(a,b);
        z = c;
        System.out.println("cons C int");
    }

    public String toString() {
        return "C "+x+" "+y+" "+z;
    }

    public static void main(String[] args) {

        A item1 = new A(7);
        A item2 = new B(11);
        A item3 = new C(6,1,10);
        B item4 = new B(2,3);
        B item5 = new C(8);
        C item6 = new C(9,4,5);

        System.out.println(item1);
        System.out.println(item2);
        System.out.println(item3);
        System.out.println(item4);
        System.out.println(item5);
        System.out.println(item6);

        item6.f(4);
        System.out.println(item6);

        item4.f();
        System.out.println(item4);

        item3.f();
        System.out.println(item3);

        item2.f(2);
        System.out.println(item2);

        item5.f(6);
        System.out.println(item5);
    }
}

```