

CSC 207H 2010 Java Quiz

Duration — 35 minutes

Aids allowed: none

Student Number:

Last Name:

First Name:

(Please fill out the identification section above and read the instructions below.)

Good Luck!

1: / 6

2: / 4

3: / 8

TOTAL: / 18

This midterm consists of 3 questions on 6 pages (including this one). *When you receive the signal to start, please make sure that your copy is complete.* If you use any space for rough work or need to scratch out an answer, circle what you want marked to indicate that it is the answer you are submitting.

Question 1. [6 MARKS]

Consider this code.

```
class A {
    public /* static? */ void m() {
        System.out.println("A's m");
    }
}

class B extends A {
    public /* static? */ void m() {
        System.out.println("B's m");
    }
}

public class Main {
    public static void main(String[] args) {
        A a1 = new B();
        a1.m();
        ((B) a1).m();
    }
}
```

Part (a) [1 MARK]

Can A's m be static and B's m be non-static? (Circle one.) YES NO

Part (b) [1 MARK]

Can A's m be non-static and B's m be static? (Circle one.) YES NO

Part (c) [2 MARKS]

What is the output if both methods are static?

Part (d) [2 MARKS]

What is the output if both methods are non-static?

Question 2. [4 MARKS]

Assignment 1 involved a `MapWindow` class and a `KeyAdapter` or a `KeyListener`. Many of you had the `MapWindow` class implement `KeyListener`, which was a fine choice.

In lecture, we discussed another possibility: the `MapWindow` class did not implement `KeyListener`, and instead we had a separate class, `MapListener`, that listened for key events in the window.

Briefly describe one benefit and one drawback of having a listener be separate from the window whose events it is listening for. (The benefit and drawback must not be directly related.)

Benefit:

-

Drawback:

-

Question 3. [8 MARKS]

Here is a program. On the opposite page is a picture of computer memory for this program, right at the line marked "PAUSED HERE".

What does the memory look like at the line marked "DRAW WHAT IT LOOKS LIKE HERE"? Update the picture. If the value of a variable changes, cross the value off and write the new value next to it.

```
class A {
    static int i;

    static int f(C c) {
        return i + c.i;
    }
}

class B extends A {
    int j;

    public void m(int i) {
        this.i = 3;
    }
}

class C extends B {
    int i;
}

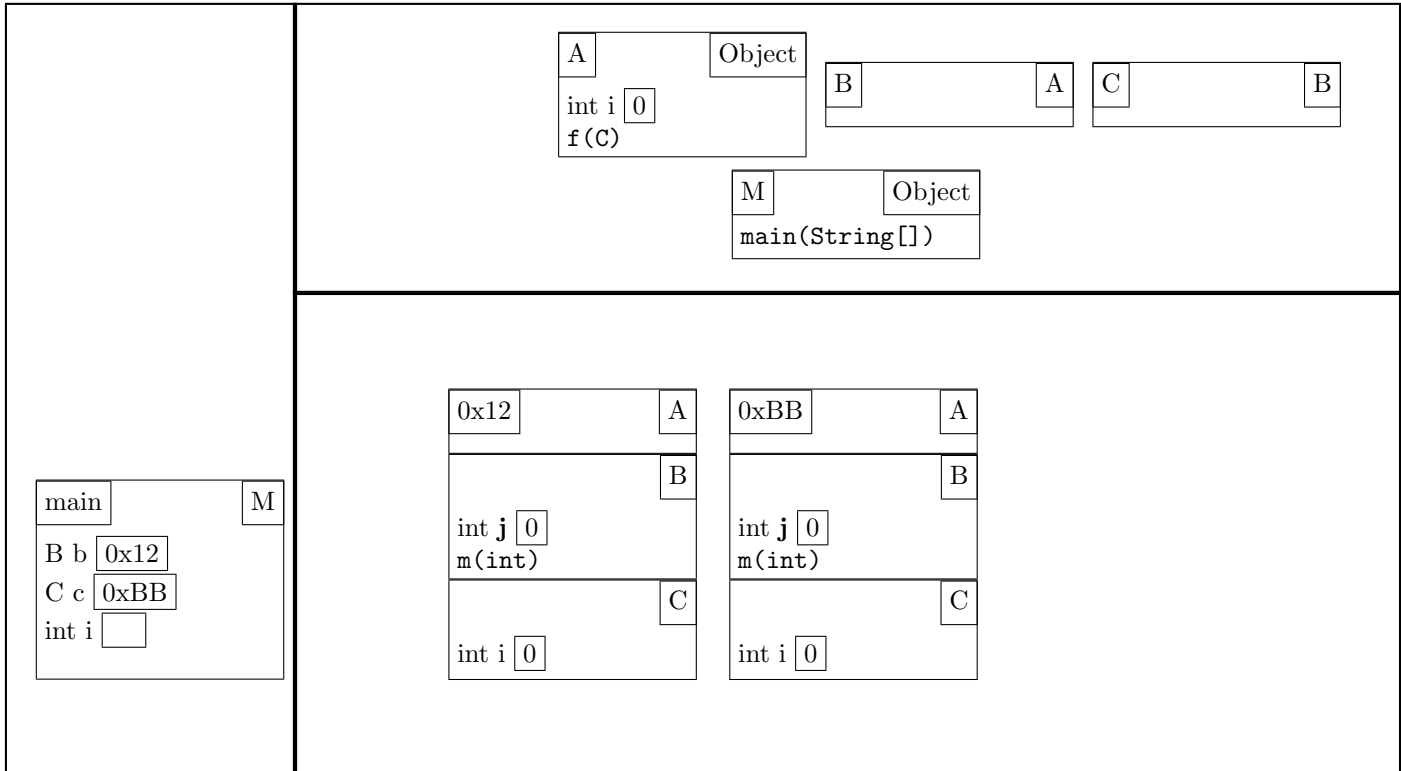
public class M {
    public static void main(String[] args) {
        B b = new C();
        C c = new C();

        // PAUSED HERE

        c.i = 100;
        b.i = 22;

        b.m(3);
        int i = b.f(c);

        // DRAW WHAT IT LOOKS LIKE HERE
    }
}
```



This page is for rough work and for answers that didn't fit in the space provided.