

# CPSC 233 Midterm review, winter 2004

THE UNIVERSITY OF CALGARY  
DEPARTMENT OF COMPUTER SCIENCE

Time: 50 minutes

Worth: 30% of course grade, 37 marks total

Lecture: 02

First name \_\_\_\_\_ Last name \_\_\_\_\_

## Instructions for the actual midterm

- This is a closed book exam: extra notes or calculating devices are not allowed.
- Mark your answers to the multiple choice questions in the computerized bubble sheet with an HB pencil or darker.
- Write all your answers to the short answer questions in the space provided in this exam booklet.
- Unless otherwise stated assume that all programs and program fragments *will* compile.
- Relax: Remember this is only an exam! ☺

Break downs for the midterm of the (nearly complete) version

Section	Marks
Multiple choice	/20
Short answer #1	/4
Short answer #2	/6
Short answer #3	/7
Total	/37

**Multiple choice questions:** For the actual exam you are to mark your answers on the separate answer sheet.

For each question make sure that you select the **best** answer to each question.

1. For the program shown below which of the following is *an instance* of class Foo?

```
class Driver
{
    public static void main (String [] args)
    {
        Foo [] fooey;
        fooey = new Foo [4];
    }
}

class Foo
{
    private int num;
    public Foo () { num = 0; }
    public int getNum () { return num; }
    public void setNum (int n) { num = n; }
}
```

- a) num
- b) fooey
- c) fooey[0]
- d) fooey[4]
- e) None of the above is an instance of class Foo.

**E**

2. Which of the following statements is true of Java's parameter passing mechanism?
- a) Simple, built-in types like boolean variables are always passed by value.
  - b) Simple, built-in types like boolean variables are always passed by reference.
  - c) Only references to objects and not the objects themselves are passed as parameters.
  - d) (a) & (c)
  - e) None of the above statements are true of Java's parameter passing mechanism.

**D**

**Short answer questions:** For the actual midterm you are to write all your answers in the space provided in the exam booklet.

1. What will be the output of the following program?

```
class SA1
{
    public static void main (String [] args)
    {
        Foo f = new Foo ();
        System.out.println("1:" + f.getNum() + " " + f.getCh());

        f = new Foo(123);
        System.out.println("2:" + f.getNum() + " " + f.getCh());

        f = new Foo('$');
        f.setNum(13);
        System.out.println("3:" + f.getNum() + " " + f.getCh());

        f = new Foo(66, 'J');
        System.out.println("4:" + f.getNum() + " " + f.getCh());

        f = new Foo (10,20, 'T');
        System.out.println("5:" + f.getNum() + " " + f.getCh());
    }
}
```

```
class Foo
{
    private int num;
    private char ch;
    private static int no = 888;

    public Foo ()
    {
        num = 1;
        ch = '*';
    }
    public Foo (int num)
    {
        this();
        no = no;
    }
    public Foo (char newCh)
    {
        this();
        ch = newCh;
    }
    public Foo (int num, char ch)
    {
        this();
        this.num = num;
        this.ch = ch;
    }
    public Foo (int n1, int n2, char c1)
    {
        this ();
        num = no;
    }
}
```

```

        no = n1 + num;
        ch = '?';
    }
    public int getNum ()
    {
        return num;
    }
    public char getCh ()
    {
        return ch;
    }
    public void setNum (int newNum)
    {
        newNum = newNum;
    }
    public void setCh (char newCh)
    {
        this.ch = newCh;
    }
}

```

<< Write your answer here >>

**1:1 \***  
**2:1 \***  
**3:1 \$**  
**4:66 J**  
**5:888 ?**

<< End of answer space >>

2. For this question you are to modify the program below so that:

- The list contains ten elements.
- The data field, “num”, for each element is set to -1.
- The program steps through the list and displays the value data field onscreen, one item per line.

```

class SA2
{
    public static void main (String [] args)
    {
        final int SIZE = 10;
        Foo [] array;
        int i;
    }
}

```

<< Begin answer space >>

```
array = new Foo[SIZE];

for (i = 0; i < array.length; i++)
{
    array[i] = new Foo(-1);
    System.out.println(array[i].getNum());
}
```

<< End of answer space >>

```
    }
}

class Foo
{
    private int num;
    public Foo ()
    {
        num = 1;
    }
    public Foo (int newNum)
    {
        num = newNum;
    }
    public int getNum ()
    {
        return num;
    }

    public void setNum (int newNum)
    {
        num = newNum;
    }
}
```