

## Introduction to C++ - Quiz 2, 31 Mar 2010

Name: \_\_\_\_\_

ID: \_\_\_\_\_

This is a *closed book* quiz. There are five questions on two pages, for a total of 20 possible points. For each question, fill in the blank with your answer.

In the code fragments, assume that the context (e.g. appropriate header files and using namespace statements) has been specified correctly.

In questions that ask what a fragment would print, in each case your answer should consist of one or more decimal digits (don't worry about spaces or newlines).

1. What would the following code fragment print (4 pts)? \_\_\_\_\_

```
class A {
public: virtual void f() { cout << "0" << endl; }
};
class B : public A {
public: void f() { cout << "1" << endl; }
};
class C : public B {
public: void f() { cout << "2" << endl; }
};
int main() {
    A *pa = new B();
    B *pb = new C();
    pa->f();
    pb->f();
}
```

2. What would the following code fragment print (4 pts)? \_\_\_\_\_

```
void h() {
    cout << "0" << endl;
}

void g() {
    throw 1;
    h();
}

void f() {
    try { g(); }
    catch (int &e) {
        cout << e << endl;
        e++;
        throw;
    }
}

int main() {
    try { f(); }
    catch (int e) { cout << e << endl; }
}
```

3. What would the following code fragment print (4 pts)? \_\_\_\_\_

```
class A {
public:
    virtual ~A() { cout << "0" << endl; }
};
class B : public A {
public:
    ~B() { cout << "1" << endl; };
};
int main() {
    A *pa = new B;
    delete pa;
}
```

4. What would the following code fragment print (4 pts)? \_\_\_\_\_

```
class A {
public:
    ~A() { cout << "0" << endl; }
};
class B : public A {
public:
    virtual ~B() { cout << "1" << endl; };
};
int main() {
    A *pa = new B;
    delete pa;
}
```

5. Given the following class relationships, only half of the numbered assignment statements are legal. Please list the numbers of the *legal* assignments in the space provided (4 pts) \_\_\_\_\_

```
class A { /* ... */ };
class B { /* ... */ };
class C : public A, public B { /* ... */ };
class D : public B { /* ... */ };

int main() {
    A a; B b; C c; D d;
    a = d; // 1
    d = b; // 2
    b = d; // 3
    a = c; // 4
    b = c; // 5
    a = b; // 6
}
```