

198:515 Programming Languages and Compilers I

Problem Set 6

This homework will not be graded. A sample solution will be made available at a later time.

Problem 1

The following C++ code may contain illegal statements.

- Identify the illegal statements in the main program by underlining them in the program listing. Give a justification why you think the eliminated statement is illegal.
- Ignoring the illegal statements, show the output of the program.

```
#include <stream.h>

class Animal
{ public:
  Animal() { isA = 'A'; };
  void display() { draw(); };
protected:
  virtual void draw () = 0;
  char isA;
};

class Bear : public Animal
{
  public:
  Bear() { isA = 'B'; };
  void draw () { cout << "ANIMAL: " << isA << "\n"; };
  private:
  void print() { cout << "ANIMAL: " << isA << "\n"; };
};

main()
{
  Bear *b = new Bear();
  Animal *c = new Animal();
  Animal *d;

  b->display();
  c->display();
  b->draw();
  b->print();
  d = b;
  d->display();
};
```

Problem 2

Give a C++ code example where the binding of a virtual function cannot be resolved at compile time.