

1. Consider the following class definitions:

```
class Sport{
public:
    virtual int winner();
private:
    int score;
};

class Volleyball: public Sport {
public:
    int loser();
};
```

Where could the assignment `score = 20;` appear for the private variable `score`?

- A. `loser()` can make the assignment, but `winner()` cannot.
- B. Both `winner()` and `loser()` can make the assignment.
- C. The answer to this question cannot be determined from the given code.
- D. [Correct Answer] [Your Answer] `winner()` can make the assignment, but `loser()` cannot.
- E. Neither `winner()` nor `loser()` can make the assignment.

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

```
class Base {
public:
    virtual ~Base() { cout << "Base "; }
};

class Derived : public Base {
public:
    Auxilliary *a2;
    Derived() { a2 = new Auxilliary(); }
    virtual ~Derived() { cout<< "Derived "; delete a2; }
};

class Auxilliary {
public:
    ~Auxilliary() { cout << "Auxilliary "; }
};

int main() {
    Base* b = new Derived;
    delete b;
}
```

- A. "Auxilliary Derived Base "
- B. [Correct Answer] [Your Answer] "Derived Auxilliary Base "
- C. "Base Auxilliary Derived "
- D. "Auxilliary Derived "
- E. "Base "

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

```
class Animal {
public:
    void saySomething() { cout << "I don't know what to say"; }
};

class Dog : public Animal {
public:
    virtual void saySomething() { cout << "Woof! Woof!"; }
};

int main() {
    Animal* a;
    Dog d;
    a = &d;
    a->saySomething();
}
```

- A. "Woof! Woof!"
- B. [Your Answer] "I don't know what to say Woof! Woof!"
- C. None of the above
- D. Runtime Error
- E. [Correct Answer] "I don't know what to say"

4. Suppose class `modPNG` contains exactly one pure virtual function whose name is `print`. Also suppose that class `flipImage` is a public `modPNG` that implements `print`.

Which of the following C++ statements will certainly result in a compiler error? Make sure to read **all** options carefully.

- A. [Correct Answer] [Your Answer] Exactly two of the code options will result in a compiler error.
- B. `modPNG a;`
- C. All three of the code options will result in a compiler error.
- D. `modPNG * a = new modPNG;`
- E. `modPNG * a; flipImage * b; a=b;`

