CS 225, Spring 2017: Quiz #2 Feedback

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1. What is the error in the following code?

```
#include <iostream>
using namespace std;

class LegoMovie{
  public:
    bool getEverythingIsAwesome();
    void setEverythingIsAwesome(bool b);
  private:
    bool everythingIsAwesome;
};

int main() {
    LegoMovie movie;
    movie.setEverythingIsAwesome(true);
    return 0;
}
```

A. The `main` method does not call the `LegoMovie`'s member functions correctly.
B. [Correct Answer] [Your Answer] There is no implementation for `LegoMovie`'s member functions.
C. The `LegoMovie` class is missing a constructor.
D. The `LegoMovie` class is missing a destructor.
E. None of the other answers is true of this code.

2. Consider the following code:

```
int main() {
    int p = 6;
    int *q;
    q = new int(p);
    // here {{#line}}
    delete q;
    return 0;
}
```

Suppose that variable `q` has location `0xdeadbeef`, variable `p` has location `0xcafebabe`, and the memory address of the new int is `0x00bae000`.

What is the value of `*q` at line {{@line}}?

A. None of these.
B. `0xcafebabe`
C. [Correct Answer] [Your Answer] `6`
D. The default value of an integer.
E. `0x00bae000`
F. `0xdeadbeef`

3. Suppose you have the following code:

```
class Coffee{
  public:
    bool awesome;
    void setSugar();
  private:
    int oz;
    bool sugar;
};

void Coffee::setSugar() { // code code code }

void serveCoffee() { // code code code }

int main() {
    Coffee c;
    return 0;
}
```

Where could the assignment `awesome = true;` occur?

A. None of the other options is correct.
B. In the `serveCoffee` function.
C. Only in the constructor for the class, if we were to write one.
D. In another file that does not include a declaration of the class `Coffee`.
E. [Correct Answer] [Your Answer] In the `main` function if we made it `c.awesome = true;`.

4. Why do we care about encapsulation?

A. It makes code look more impressive.
B. It keeps everything in the same file to prevent files from getting lost or not included.
C. It allows variables to be changed in a way that will cause internal inconsistencies in the data structure.
D. It reduces the amount of code we have to write.
E. [Correct Answer] [Your Answer] It prevents others from seeing the implementations of our functions, which helps with security and protection of intellectual property.

```
class Foo {
   public:
      Foo();
   private:
      int bar;
};

Foo::Foo() { bar = 0; }

int main() {
    Foo *x = new Foo();
    Foo *y = new Foo(12);
    return 1;
}
```

5. What is the result when this code is compiled and run?

A. A compiler error, because `bar` is private.
B. No output
C. [Correct Answer] A compiler error, because the proper constructor doesn't exist for the assignment to `y`.
D. [Your Answer] The number 1 is printed to the screen.
E. A runtime error, because `bar` is private.
F. A runtime error, because the proper constructor doesn't exist for the assignment to `y`.