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:
    void setEverythingIsAwesome(bool b);
  private:
    bool everythingIsAwesome;
};

void LegoMovie::setEverythingIsAwesome(bool b) { everythingIsAwesome = b; }

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

A. The `LegoMovie` class is missing a destructor.
B. The `LegoMovie` member functions are not scoped correctly.
C. The `LegoMovie` class is missing a constructor.
D. [Correct Answer] The `main` method does not call the `LegoMovie`'s member functions correctly.
E. [Your Answer] None of the other answers is true of this code.

2. Suppose you have the following code:

```
class Burger {
  public:
    void setNumPatties(int num);
  private:
    bool cheese;
    bool ketchup;
};

void Burger::setNumPatties(int num) { // code code code }

void serveBurger() { // code code code }

int main() {
    Burger b;
    return 0;
}
```

Where could the assignmen `cheese = true;` occur?

A. Any of these would be a valid location.
B. In the `serveBurger` function.
C. In the `main` function if we made it `b.cheese = true;`.
D. [Correct Answer] [Your Answer] In the `setNumPatties` function.
E. Only in the constructor, if we were to write one.

3. Consider the following code:

```
int main() {
    int *q;
    q = new int;
    *q = 6;
    delete q;
    return 0;
}
```

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

What is the value of `q` just before we call `delete` in the code above?

A. None of these.
B. [Correct Answer] [Your Answer] `0xcafebabe`
C. `0`
D. `6`
E. `0xdeadbeef`

4. What is one way that C++ enforces `encapsulation`?

A. By using pointers, rather than the objects themselves.
B. [Correct Answer] [Your Answer] Creating private member variables and public functions to alter the variables in a controlled manner.
C. Compilation is orchestrated via a Makefile.
D. By convention, the main function is put in a separate file.
E. C++ employs inheritance.

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

Foo::Foo(string init) { bar = 12; }

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

5. What is the result of compiling and running this code?

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