CS 225, Spring 2017: Quiz #2 Feedback

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1. Suppose you have the following code:

```
class Cake{
  public:
    void setNumLayers(int num);
  private:
    string flavor;
    bool thickFrosting;
};

void Cake::setNumLayers(int num) { // code code code }

void bakeCake() { // code code code }

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

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

A. [Correct Answer] In the `setNumLayers` function.
B. None of these.
C. In the `main` function if we made it `c.thickFrosting = true;`.
D. [Your Answer] Only in the constructor for the class, if we were to write one.
E. In the `bakeCake` function.

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

Foo::Foo(int init) { bar = init; }

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

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

A. No error, and no output.
B. [Correct Answer] [Your Answer] A compiler error, because the proper constructor doesn't exist for the assignment to `x`.
C. A runtime error, because the proper constructor doesn't exist for the assignment to `x`.
D. A compiler error, because `y` is a pointer.
E. A compiler error, because `bar` is private.

3. Consider the following code:

```
int main() {
    int p = 3;
    int *q;
    q = &p;
    *q = 6;
    // here {{#line}}
    return 0;
}
```

Suppose that the memory address of `q` is `0xdeadbeef` and the memory address of `p` is `0xcafebabe`.

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

A. `0`
B. `6`
C. `3`
D. [Correct Answer] [Your Answer] `0xcafebabe`
E. `0xdeadbeef`

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

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

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