CS 225, Spring 2017: Quiz #2 Feedback

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

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

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

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

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

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

5. What is the error in the following code?

```cpp
#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] There is no implementation for `LegoMovie`'s member functions.
C. None of the other answers is true of this code.
D. The `LegoMovie` class is missing a destructor.
E. [Your Answer] The `LegoMovie` class is missing a constructor.

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

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

int main() {
    LegoMovie movie;
```