Sample Test of C++

brian m. carlson

This test omits the relevant headers for code snippets; it is assumed that you are familiar with which headers are necessary for certain functions.

(1) The following code produces two lines. What are they?

```
int main(void)
{
	std::cout << std::hex << 5 << std::endl;
	std::cout << 105 << std::endl;

	return 0;
}
```

(2) This code fails to compile with an error on the indicated line. How do you need to adjust the code so it compiles and operates correctly.

```
class A
{
	public:
		A()
		{
			a = 5;
			b = 3;
		}
	protected:
		virtual int function()
		{
			c = a + b;
			a++;
			return c;
		}
		int a, b, c;
};

class B : public A
{
};

class C : public A
{
};

class D : public B, public C
{
	public:
		virtual int method()
		{
			return A::function(); // error
		}
};
```

```
int main(void)
{
      D obj;

      std::cout << obj.method() << std::endl;
      std::cout << (obj.method() * 2) << std::endl;

      return 0;
}
```

(3) Write a function to efficiently exchange the contents of two std::vectors.

(4) What does the following statement do?

```
using namespace std;
```

(5) Determine whether this program runs successfully (exits 0) for 32-bit and 64-bit Windows and 32-bit and 64-bit Unix systems. Provide the exit value if it does not.

```
template<class T>
int GetValue()
{
      return sizeof(T) * 8;
}

int main(void)
{
      return GetValue<long>() - GetValue<int>();
}
```

(6) Provide the three lines of output.

```
int GetByte(int &t, int &u, int *s)
{
      t++;
      int &x = s[t];
      u += s[t];
      int &y = s[u];
      std::swap(x, y);
      return s[(x + y) & 15];
}

int main(void)
{
      int s[16], t = 0, u = 2;

      for (int i = 0; i < 16; i++)
            s[i] = i;

      std::cout << GetByte(t, u, s) << std::endl;
      std::cout << GetByte(t, u, s) << std::endl;
      std::cout << GetByte(t, u, s) << std::endl;

      return 0;
}
```