# CS 210: Exam #1

Ray S. Babcock

February 20, 2003

**Name:** ____________________

Open book(s) and notes, 75 minutes. There are 20 questions in this test. Some are multiple choice, circle the correct answer. If you choose NONE as an answer, you must supply a correct answer. It is your responsibility to make sure that you have all of the questions. Be sure to show any tracing you do for partial credit possibilities.

| Question | Points | Score | Question | Points | Score |
|---|---|---|---|---|---|
| 1 | 5 | | 11 | 4 | |
| 2 | 5 | | 12 | 4 | |
| 3 | 5 | | 13 | 4 | |
| 4 | 4 | | 14 | 8 | |
| 5 | 5 | | 15 | 8 | |
| 6 | 4 | | 16 | 8 | |
| 7 | 4 | | 17 | 4 | |
| 8 | 6 | | 18 | 4 | |
| 9 | 4 | | 19 | 4 | |
| 10 | 4 | | 20 | 6 | |
| | | | | 100 | |

1. (5 pts) The C++ statement that allows us to call `cout` instead of `std::cout` is:

   (a) #include <iostream>

   (b) `int usestd;`

   (c) #include <vector>

   (d) `using namespace std;`

   (e) None are correct. The correct answer is: ____________________

2. (5 pts) The character backspace in a string literal is designated by:

   (a) `\n`

   (b) `\t`

   (c) `\b`

   (d) `\"`

   (e) None are correct. The correct answer is: ____________________

3. (5 pts) What would be output by the following three statements:

```
cout << "A ";
cout << "cold ";
cout << "day!" << endl;
```

   (a) `Acoldday!`

   (b)
   ```
   A
   cold
   day!
   ```

   (c)
   ```
   A
   cold day!
   ```

   (d) `A cold day!`

   (e) None are correct. The correct answer is: ____________________

4. (4 pts) Given the following definitions:

```
int a(10),
    b(12),
    c(15),
    d(20);
```

what is the value of:

```
(a == 12) or (b != 12) or (c < 8) or (d > 30)
```

(a) 12
(b) 15
(c) true
(d) false
(e) None are correct. The correct answer is: ____________________

5. (5 pts) Given the following:

```
int cat(7),
    frog(10),
    jump(14);
```

If the above declarations and the following expressions were used in a C++ program, what would the value of each expression be: (Put the value to the right of each expression).

- `6 / 12`
- `cat = 8`
- `( frog == 10 ) and ( jump <= 14 )`
- `1 + 2 * 3 / 4 - 5 + 2 * 3 + 8 - 1`
- `jump % 3`

Given the following:

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

void proc(int& a1, int a2)
{
 int local(2);
 local = local + a2;
 a1++;
}
int main(void)
{
  int main1(10),
      main2(4);
  proc(main1, main2);
  cout << main1 << endl; // OUTPUT ONE
  cout << main2 << endl; // OUTPUT TWO
}
```

6. (4 pts) What would print at the line marked OUTPUT ONE?

   (a) 10
   (b) 4
   (c) 11
   (d) 5
   (e) None are correct. The correct answer is: ____________________

7. (4 pts) What would print at the line marked OUTPUT TWO?

   (a) 10
   (b) 4
   (c) 11
   (d) 5
   (e) None are correct. The correct answer is: ____________________

8. (6 pts) Given the following:

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

int main (void)
{
char cold[10] = {'a','b','c','d','e','f','g','h','i','j'};

cout.put(cold[3]);
cout.put(cold[8]);
cout.put(cold[6]);
cout << endl;

}
```

What would print?

9. (4 pts) Given the following:

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

int main (void)
{
int total_length(0);

        total_length = sizeof("a") + sizeof('b');
cout << "total length = " << total_length << endl;

}
```

What would print?

10. (4 pts) Given the following:

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

int main (void)
{
int snow(0);
const int tire(9);

        tire = snow;

cout << tire << endl;
}
```

Would this compile? If it would compile, write YES, if it won't compile, write NO and tell why.

11. (4 pts) Given the following:

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

int main (void)
{
int uncles(5);
int aunts(uncles);
int chairs(aunts + uncles + 4);

cout << "uncles = " << uncles << endl;
cout << "aunts = " << aunts << endl;
cout << "chairs = " << chairs << endl;
}
```

What would print?

12. (4 pts) Given the following:

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

int main (void)
{
int snow(0xc);

cout << "snow = " << snow << endl;
}
```

What would print?

13. (4 pts) Given the following:

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

int main (void)
{
int flakes(-1);

flakes += 2 * 8 - 3 * 2 + 4;

cout << flakes << endl;
}
```

What would print?

14. (8 pts) Given the following:

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

int fun1(int *, int);

int main (void)
{
int ice(0);
int * ice_ptr = &ice;

int skate(0);
int * skate_ptr = &skate;

int return_value(0);

ice = 12;
skate = 22;
return_value = fun1(ice_ptr, skate);

cout << "ice = " << ice << endl;
cout << "skate = " << skate << endl;
cout << "return_value = " << return_value << endl;

}

int fun1 ( int * ptr, int var)
{
int local;

local = 4;
*ptr = (*ptr)++;
var++;

return(local+var);
}
```

What will print?

15. (8 pts) Given the following:

```
#include <iostream>
using namespace std;
int main (void)
{  struct my_struct {
    int fred;
    int sam;
    char code;
   };
   char codes[6]={'a','a','d','b','a','f'};
   my_struct joan;
   joan.fred = 10;
   joan.sam = 0;
   for(int i=0; i<6; i++)
    {
     joan.code = codes[i];
     switch (joan.code){
          case 'a':
            joan.sam++;
            break;
          case 'b':
            joan.fred++;
            break;
          case 'c':
            joan.sam--;
            break;
          case 'd':
            joan.fred--;
            break;
          default:
            joan.fred += 2;
            joan.sam -= 2;
       } // end of switch
      } // end of for
cout << "joan.fred = " << joan.fred << endl;
cout << "joan.sam = " << joan.sam << endl;
}
```

What would print?

16. (8 pts) Given the following:

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

int main (void)
{
  struct s1 {
    int aOne;
    char aChar;
   };
  struct s2 {
    s1 bOne;
    int bTwo;
   };

  int locala;
  int localb;
  int localch;

  s2 array1[]= {
   {{-5, 'a'},1},
   {{0, 'b'},2},
   {{5, 'c'},3}
               };

   cout << "first: " << array1[2].bOne.aChar << endl;
   cout << "second: " << array1[0].bTwo << endl;



}
```

What would print?

17. (4 pts) Given the following:

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

int main (void)
{
short fred(33000);

cout << fred << endl;
}
```

What would print?

18. (4 pts) Given the following:

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

int main (void)
{
cout << INT_MAX + 1 << endl;
}
```

What would print?

19. (4 pts) Given the following:

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

int main (void)
{
  int sun(-3),
      coast(3),
      park(10);

  if( (sun < 0) or (coast = 18) )  // note assignment (=) operator used!
    cout << "spring break!" << endl;
  else
    cout << "good skiing!" << endl;

    cout << "coast is now " << coast << endl;
}
```

What would print?

20. (6 pts) Given the following:

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

int proc1(int a=3, int b=6, char c='b');

int main (void)
{
  cout << proc1(10,20) << endl;
  cout << proc1(5) << endl;
  cout << proc1(1,1,'c') << endl;
  cout << proc1(2,2,'d') << endl;
}

int proc1(int a, int b, char c)
{
  int d(0);

  switch (c) {
    case 'a': d=1;
              break;
    case 'b': d=2;
              break;
    case 'c':
    case 'd': d=3;
              break;
    default:  d=4;
    } // end of switch
  return((a+b)*d);
}
```

What would print?