Spring Semester 15, Dr. Punch. Exam #1 (2/12), form 1 A

Last name (printed):__________________________________________________________

First name (printed):________________________________________________________

Directions:

a) DO NOT OPEN YOUR EXAM BOOKLET UNTIL YOU HAVE BEEN TOLD TO BEGIN.

b) You have 80 minutes to complete the exam (10:20-11:40)

c) This exam booklet contains 30 multiple choice questions, each weighted equally (5 points). **10 pages total**

d) You may use one 8.5" x 11" note sheet during the exam. No other reference materials or calculating devices may be used during the examination.

e) Questions will not be interpreted during the examination.

f) You should choose the single best alternative for each question, even if you believe that a question is ambiguous or contains a typographic error.

g) Please fill in the requested information at the top of this exam booklet.

h) Use a #2 pencil to encode any information on the OMR form.

i) Please encode the following on the OMR form:

   ■ Last name and first initial
   ■ MSU PID
   ■ Exam form (see the title of this page)

j) Please sign the OMR form.

k) Only answers recorded on your OMR form will be counted for credit.

l) Completely erase any responses on the OMR form that you wish to delete.

m) You must turn in this exam booklet and the OMR form when you have completed the exam. When leaving, please be courteous to those still taking the exam.

Good luck.

**Timing tip.** A rate of 2.5 minutes per multiple choice problem leaves 5 minutes to go over any parts of the exam you might have skipped.
#include<iostream>
using std::cout; using std::endl; using std::cin; using std::fixed;
#include<iomanip>
using std::setprecision;

int main (){
    double my_d = 10;
    long my_l = 6;
    int i = 27, cnt = 0;
    for(int i=0; i<=my_l; i++)
        if ((i % 3) == 0 || (i==2)){
            cnt++;
            my_d /= 2;
        }
    else
        my_d *= 2;

cout << fixed << setprecision(3); // Line 1
    cout << my_l << endl; // Line 2
    cout << my_d << endl; // Line 3
    cout << cnt << endl; // Line 4
    cout << i << endl; // Line 5
}

Figure 1

1) For the program in Figure 1, give the output of Line 1?
   a) 3
   b) 0
   c) 1
   d) no output is produced
   e) None of the above.

2) For the program in Figure 1, give the output of Line 2?
   a) 10
   b) 6
   c) 0
   d) 27
   e) None of the above.

3) For the program in Figure 1, give the output of Line 3?
   a) 5
   b) 5.000
   c) 10
   d) 0
   e) None of the above.
4) For the program in Figure 1, give the output of Line 4?
   a) 2
   b) 3
   c) 4
   d) 5
   e) None of the above.

5) For the program in Figure 1, give the output of Line 5?
   a) 5
   b) 6
   c) 7
   d) 27
   e) None of the above.
6) What does the `clear` method in `cin.clear()` do?
   a) It clears the `cin` buffer, removes all its contents
   b) It clears any errors that occurred on the `cin` buffer.
   c) returns True if the `cin` buffer is empty
   d) All of the above
   e) None of the above

7) For `int v = 5;` what does `cout << v++;` output?
   a) 5
   b) no return value
   c) 6
   d) `cout`
   e) None of the above

8) Which of the following are true about an `int&` declaration?
   a) must be initialized at declaration time
   b) cannot be set to a literal (like the number 5)
   c) can be changed after it is declared.
   d) All of the above
   e) None of the above

9) Which of the following are true about `ifstream("f.txt") f`?
   a) f is an input pipe for the file contents f.txt.
   b) having been declared, now f must be opened.
   c) can only be used for integer types
   d) All of the above
   e) None of the above

10) What is the purpose of the `&` symbol?
    a) It depends on the context.
    b) Get the address of a variable.
    c) Declare a reference variable
    d) logical and operator
    e) None of the above

11) Which of the following expressions will return a double given `int i=5;`.
    a) `i/10.0;`
    b) `static_cast<double>(i);`
    c) `i + 0.0;`
    d) All of the above
    e) None of the above

12) Which of the following is true about a template function:
    a) uses the `template` keyword.
    b) the compiler deduces `typename` variables at runtime.
    c) cannot return a value.
    d) All of the above
    e) None of the above
```cpp
#include<iostream>
using std::cout; using std::endl;

long f1(long &l_r, long *l_p, const long val){
    long my_l = 1;
    l_r = l_r * val;
    *l_p = *l_p + val;
    return my_l / 2;
}

int main () {
    long two = 2, three = 3, four = 4;
    auto result = f1(two, &three, four); // Line 1
    cout << result << endl; // Line 2
    cout << two << endl; // Line 3
    cout << three << endl; // Line 4
    cout << four << endl; // Line 5
}
```

13) For the program in Figure 2, what type is `result` on Line 1.
   a) int
   b) double
   c) long*
   d) long&
   e) None of the above

14) For the program in Figure 2, what does the `&` mean on Line 1.
   a) pointer to
   b) address of
   c) reference to
   d) value of
   e) None of the above

15) For the program in Figure 2, give the output of Line 2.
   a) 0.5
   b) 0
   c) some_address
   d) 1
   e) None of the above

16) For the program in Figure 2, give the output of Line 3.
   a) 2
   b) 4
   c) some_address
   d) 8
   e) None of the above
17) For the program in Figure 2, give the output of Line 4.
   a) 3
   b) 6
   c) 7
   d) some address
   e) None of the above

18) For the program in Figure 2, give the output of Line 5.
   a) 4
   b) 8
   c) some address
   d) 16
   e) None of the above
For the program shown in Figure 3, what type is `var` on Line 1?

a) string  
b) int  
c) long  
d) double  
e) None of the above

For the program shown in Figure 3, what output is produced by Line 2?

a) 1  
b) 2  
c) 3  
d) 4  
e) None of the above
21) For the program shown in Figure 3, what output is produced by Line 3?
   a) 11
   b) 12
   c) 13
   d) 14
   e) None of the above

22) For the program shown in Figure 3, what output is produced by Line 4?
   a) 1
   b) 2
   c) 3
   d) 4
   e) None of the above

23) For the program shown in Figure 3, what output is produced by Line 5?
   a) 6
   b) 0
   c) 3
   d) 9
   e) None of the above
Figure 4

24) For the program in Figure 4, what value is printed by Line 1?
   a) abc
   b) abd
   c) 123
   d) a1
   e) None of the above

25) For the program in Figure 4, what value is printed by Line 2?
   a) 123
   b) 123123
   c) 246
   d) 6
   e) None of the above
26) For the program in Figure 4, what value is printed by Line 3?
   a) 5  
   b) 6  
   c) 7  
   d) 8  
   e) None of the above
27) For the program in Figure 4, what value is printed by Line 4?
   a) 10  
   b) 11  
   c) 12  
   d) 13  
   e) None of the above
28) For the program in Figure 4, what type is result in Line 5?
   a) int  
   b) long  
   c) bool  
   d) string  
   e) None of the above
29) For the program in Figure 4, what value is printed in Line 6?
   a) equal  
   b) unequal  
   c) true  
   d) false  
   e) None of the above
30) As discussed in class, what drives the C++ system?
   a) types  
   b) the compiler  
   c) the linker  
   d) the programmer  
   e) None of the above