Fall Semester 16 Dr. Punch. Exam #1 (10/6), 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). **11 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.
Figure 1

```
#include <iostream>
using std::cout; using std::endl; using std::cin;

int main (){
    long num1;
    cin >> num1;
    long num2;
    cin >> num2;

    long cnt = 0;
    long temp = num1;
    long res = 0;

    while (cnt < num2){
        res = temp % 10;
        temp = temp / 10;
        temp = temp + (res * 100);
        cnt++;
    }
    cout << num1 << endl;    // Line 1
    cout << temp << endl;     // Line 2
    cout << cnt << endl;      // Line 3
}
```

1) For the program in Figure 1 with the input 123 1, give the output of Line 1?
   a) 123
   b) 1
   c) 312
   d) 213
   e) None of the above.

2) For the program in Figure 1 with the input 123 1, give the output of Line 2?
   a) 123
   b) 1
   c) 312
   d) 231
   e) None of the above.

3) For the program in Figure 1 with the input 123 1, give the output of Line 3?
   a) 1
   b) 2
   c) 3
   d) 4
   e) None of the above.
4) For the program in Figure 1 with the input 456 2, give the output of Line 2?
   a) 2  
   b) 645  
   c) 564  
   d) 456  
   e) None of the above.

5) For the program in Figure 1 with the input 789 3, give the output of Line 2?
   a) 3  
   b) 978  
   c) 897  
   d) 879  
   e) None of the above.
6) For the following:
   string str;
   cin >> str;
   given the console input "Hi Mom", what value does str contain?
   a) Unknown, str was not initialized
   b) "Hi".
   c) "Mom"
   d) "Hi Mom"
   e) None of the above

7) For the following:
   long my_long = 123;
   long& val = my_long;
   What does the & signify?
   a) the address of val
   b) val is a reference
   c) the Boolean-and of val and my_long
   d) This expression is illegal, will not compile
   e) None of the above

8) For the following:
   long my_long = 123;
   long* val = &my_long;
   What does the * signify?
   a) The dereferencing of val
   b) val is a pointer type
   c) the Boolean multiplication of val and my_long
   d) This expression is illegal, will not compile
   e) None of the above

9) What does the expression cin.clear() signify?
   a) clears all contents in the input stream cin
   b) opens the input stream cin for operation
   c) clears only the errors present on cin, nothing else.
   d) gets a whole line of input from cin
   e) None of the above

10) What is the approximate range of values for a 32 bit integer?
    a) $-2^{32} \ldots 2^{32}$
    b) $0 \ldots 2^{32}$
    c) $2^{64} \ldots 2^{64}$
    d) $0 \ldots 2^{31}$
    e) None of the above
11) Which of the following are true about a template function in C++?
   a) it is a pattern used to make a function
   b) typename is a keyword used to make a template function
   c) the compiler can determine the types used in the template from the function's call.
   d) All of the above
   e) None of the above

12) Which of the following initializes a string s to the value "Hi Mom"?
   a) string s = "Hi Mom";
   b) string s("Hi Mom");
   c) string s = {'H', 'i', ' ', 'M', 'o', 'm'};
   d) All of the above
   e) None of the above
For the program in Figure 2, what type is result on Line 1.

a) 0  
b) 1  
c) 2  
d) 3  
e) None of the above
14) For the program in Figure 2, what value is output on Line 2.
   a) 0
   b) 1
   c) 2
   d) 3
   e) None of the above

15) For the program in Figure 2, give the output of Line 3.
   a) 0
   b) 1
   c) 2
   d) 3
   e) None of the above

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

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

18) For the program in Figure 2, give the output of Line 6.
   a) 0
   b) 1
   c) 2
   d) 3
   e) None of the above
19) For the program in Figure 3, which of the following is/are true about the declaration on Line 1?
   a) a1 is acting as an lvalue
   b) a3 is acting as an lvalue
   c) a1 and a3 have different types
   d) All of the above
   e) None of the above

20) For the program shown in Figure 3, what output is produced by Line 2?
   a) 0
   b) 1
   c) 10
   d) 20
   e) None of the above

21) For the program shown in Figure 3, what output is produced by Line 3?
   a) 0
   b) 1
   c) 10
   d) 20
   e) None of the above
22) For the program shown in Figure 3, what output is produced by Line 4?
   a) 0
   b) 1
   c) 10
   d) 20
   e) None of the above

23) For the program shown in Figure 3, what output is produced by Line 5?
   a) 0
   b) 1
   c) 10
   d) 20
   e) None of the above

24) For the program shown in Figure 3, what output is produced by Line 6?
   a) 0
   b) 1
   c) 10
   d) 20
   e) None of the above
Figure 4

25) For the program in Figure 4, what type is var1 on Line 1?
   a) double  
   b) string  
   c) Type  
   d) size_t  
   e) None of the above
26) For the program in Figure 4, what type is $i$ on Line 2?
   a) double
   b) string
   c) Type
   d) size_t
   e) None of the above

27) For the program in Figure 4, what value is printed by Line 3?
   a) mother
   b) mothhr
   c) hhhhhhr
   d) moaer
   e) None of the above

28) For the program in Figure 4, what value is printed by Line 4?
   a) mother
   b) mothhr
   c) hhhhhhr
   d) moaer
   e) None of the above

29) For the program in Figure 4, what value is printed by Line 5?
   a) 1
   b) 2
   c) 3
   d) 4
   e) None of the above

30) For the program in Figure 4, what value is printed by Line 6?
   a) mother
   b) mothhr
   c) hhhhhhr
   d) moaer
   e) None of the above