Fall Semester 18 Dr. Punch. Exam #1 (10/04), 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 90 minutes to complete the exam (7:00pm – 8:30pm)

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.
Pay attention to the input values and Line numbers!!

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

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

3) For the program in Figure 1 given the inputs 10 2 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 given the inputs 10 20 give the output of Line 1?
   a) 1
   b) 2
   c) 3
   d) 4
   e) None of the above.
5) For the program in Figure 1 given the inputs 11 4 give the output of Line 2?
   a) 1
   b) 2
   c) 3
   d) 4
   e) None of the above.

6) For the program in Figure 1 given the inputs 20 15 give the output of Line 3?
   a) 1
   b) 2
   c) 3
   d) 4
   e) None of the above.
7) Given the declaration `int i = 5;` what does `cout << i--;` print?
   a) 4
   b) 5
   c) 6
   d) Error, won’t compile (cannot print that).
   e) None of the above
8) For the following code snippet:
   ```
   long &lng1 = 10;
   long lng2 = lng1;
   ```
   What does the `&` signify?
   a) take the Boolean-and of `lng2` and `lng1`.
   b) treat `lng2` as a reference type.
   c) extract the memory address of `lng2`.
   d) This expression is illegal, will not compile
   e) None of the above
9) For the following code snippet:
   ```
   long my_long = 123;
   long* val = my_long;
   ```
   What does the `*` signify?
   a) `val` is a `long` pointer type
   b) multiply `val` by `my_long` and reassign back to `val`
   c) dereference `val` and assign to it the value of `my_long`
   d) `val` is a long reference type
   e) None of the above
10) Which of the following Unix command line commands will move a file?
    a) `m`
    b) `cp`
    c) `mv`
    d) `move`
    e) None of the above
11) Which of the following Unix commands is a pager?
    a) `cat`
    b) `less`
    c) `page`
    d) `pg`
    e) None of the above
12) What effect does `cout << boolalpha;` have on output:
   a) output is turned off (reapplying will turn it back on)
   b) output will only print Booleans and alphabetic characters, others are ignored
      (reapplying will turn it off and print everything)
   c) output prints Booleans as true/false (reapplying will print Booleans as 1/0)
   d) output converts alphabetic characters to Booleans (reapplying will turn it back
      off)
   e) None of the above

13) Which of the following statements are true about hexadecimal numbers in C++?
   a) hexadecimal values are preceded by “0x”, for example 0x11
   b) hexadecimal values are in base 16
   c) the letters a-f are used in hexadecimal numbers
   d) All of the above
   e) None of the above
For the program in Figure 2, what value is output on Line 1.

a) 0  
b) 1  
c) 2  
d) 3  
e) None of the above
15) 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
16) For the program in Figure 2, give the output of Line 3.
   a) 4  
b) 6  
c) 8  
d) 10  
e) None of the above
17) 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
18) For the program in Figure 2, give the output of Line 5.
   a) 4  
b) 6  
c) 8  
d) 10  
e) None of the above
19) For the program in Figure 2, give the output of Line 6.
   a) 1  
b) 2  
c) 3  
d) 10  
e) None of the above
20) For the program in Figure 3, what output is produced by Line 1?
   a) 0  
   b) 1  
   c) 2  
   d) 4  
   e) None of the above

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

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

23) For the program shown in Figure 3, what type is result on Line 4?
   a) long  
   b) long reference  
   c) double  
   d) long pointer  
   e) None of the above
24) For the program shown in Figure 3, what output is produced by Line 5?
   a) 8
   b) 12
   c) 16
   d) some address
   e) None of the above

25) For the program shown in Figure 3, what output is produced by Line 6?
   a) some address
   b) 1
   c) 2
   d) 4
   e) None of the above
#include <iostream>
using std::cout; using std::endl;
#include <string>
using std::string;

string fn1(string arg_s) {
    string result = "";
    for (int i = 0; i < arg_s.size(); i += 2) {
        result = result + arg_s[i];
    }
    return result;
}

string fn2 (string arg_s, char c1, char c2)
{
    string result;
    for (auto ele : arg_s) {                      // Line 1
        if (ele < c1)
            result += ele;
        else
            result += c2;
    }
    return result;
}

string fn3(string arg_s) {
    int sz = arg_s.size();
    for (int i = 0; i < sz; ++i) {
        if (i % 3 == 0) {
            arg_s[i] = arg_s[i] + 2;
        }
    }
    return arg_s;
}

int main (){
    string s = "abcdefg";
    cout << fn1(s) << endl;                      // Line 2
    cout << fn2 (s, 'd', 'e') << endl;          // Line 3
    cout << fn2 (s, 'e', 'c') << endl;          // Line 4
    cout << fn3(s) << endl;                     // Line 5
}

Figure 4

26) For the program in Figure 4, what type is var on Line 1?
   a) double
   b) string
   c) char
   d) unsigned int
   e) None of the above

27) For the program in Figure 4, what value is printed by Line 2?
   a) abcd
defg
   b) cdefgab
   c) abcd
defg
   d) aceg
   e) None of the above
28) For the program in Figure 4, what value is printed by Line 3?
   a) abcdefg
   b) abcdeee
   c) abceeee
   d) abcdfee
   e) None of the above

29) For the program in Figure 4, what value is printed by Line 4?
   a) abcdefg
   b) abcdeee
   c) abceeee
   d) abcdfee
   e) None of the above

30) For the program in Figure 4, what value is printed by Line 5?
   a) abcdefg
   b) cbcdefi
   c) accdefi
   d) cbcfefi
   e) None of the above