

CS150 Exam #2 Review Topics

- 1) advanced output using `#include <iomanip>`
fixed, setprecision, setw, sticky, tabular formatting of data
- 2) if statement
single-alternative, double-alternative, multiple-alternative
- 3) `static_cast`
- 4) are two program segments identical (i.e. will produce the same results in all cases). Are the two program segments below equivalent? Why or why not?

```
switch (value)                if (1 == value || 2 == value)
{                               {
    case 1:                    ++x;
    case 2: ++x;                }
    case 3: ++y;                else if (3 == value)
}                               {
                               ++y;
                               }
```
- 5) What are logical operators?
- 6) What is a relational expression?
- 7) Rewrite `!(salary < MIN_SALARY)` as an equivalent expression without using the `!`
- 8) What is an ordinal data type?
- 9) The default of a switch is equivalent to the what of an if?
- 10) Rewrite the logic of a switch as an if and the logic of an if as a switch
- 11) Can you easily rewrite the following if logic as a switch? Why or why not?

```
if (count > 10 && count < 100)
{
    cout << count + 1;
}
else
{
    cout << count - 1;
}
```
- 12) What are the three looping control structures?
- 13) Which looping structure is used when the number of iterations through a loop is known?
- 14) Which looping structure is used when data validation is required?
- 15) Which looping structures are pre-tested in nature?
- 16) What does the flowchart for a do-while look like?
- 17) How many consecutive positive integers must be added together to produce a result that exceeds 10,000? Write your solution using a while, for, and do-while loop.

- 18) Print the characters from 'A' to 'Z' on the screen one line at a time using a loop.
 19) Know the difference between ++x, x++, --x, x--, and also know the combined arithmetic operators such as -=, /=, %=, ...

20) What is the meaning of k = x--;

21) What is the output?

```
int count = 0, sum = 0;
while (++count < 5)
{
    sum += count++;
    cout << count << ' ' << count - 1 << endl;
}
cout << count << ' ' << sum;
```

22) What is the output?

```
int count = 0, sum = 0;
do
{
    sum += count++;
    cout << count << ' ' << count - 1 << endl;
} while (++count < 5);
cout << count << ' ' << sum;
```

23) What header file is needed for reading from a file?

24) How would you open the file "data.txt" for reading?

25) What is a sentinel value?

26) Ask the user to enter any integer that is not 12, 13, or 17. Keep asking until the user enters a valid number.

27) Ask the user to enter any letter that is not a capital letter. Keep asking until the user enters a valid letter.

28) Consider the following program segment:

```
for (int count = 0; count < 10; count += 3)
{
    cout << count << ' ' << count - 1 << endl;
}
```

What is the scope of count? What is the output? Rewrite as a while loop.

29) Using a for loop, compute and print the sum of the first 100 multiples of 3.

30) A data file "data.txt" exists with an unknown number of integer values, one per line. The sentinel value is -999. Write a C++ program that will print each value read from the file two values per line. Each value is to be printed left-justified in a field of 3. The file below produces the result to the right.

```
2           2  5
5           11
11
-999
```