Name _____

Date _____

Midterm Review

Score _____

1. Given a vector **v** and an array **a**, both with a size of 5, which one always generates an error?

(A) a[0] = v.at(2);

(B) v.at(5) = a[10];

(C) v[3] = 30;

(D) v[0] = a[4];

2. Which of the following will not successfully compile a runnable program with the following files?

(A) g++ *.cpp -o a.out

(B) g++ main.cpp Point.cpp Rectangle.cpp

(C) g++ Point.h Rectangle.h

(D) All of the above

```
main.cpp
Folder
    Point.h
Point.cpp
Rectangle.cpp
Rectangle.h
```
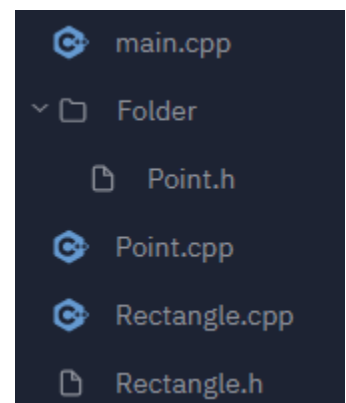
3. What is the correct way to declare an array **a**?

(A) array a;

(B) int a;

(C) int a[3];

(D) array<int> a;

4. Given this code, what is the correct way to declare an object?

```
class Rectangle {
private:
   ...
public:
   Rectangle();
   explicit Rectangle(int);
   explicit Rectangle(int, int);
};
```

(A) Rectangle r = 3;

(B) Rectangle r(3, 4);

(C) Rectangle r = {3,4};

(D) Rectangle r = new r;

5. Which line of code is the correct way to overload the unary operator ++ ?

(A) void operator++();

(B) operator operator++();

(C) int ++();

(D) Point operator+(Point);

6. Which line of code is the **best** code for declaring a good input string stream?

(A) istringstream ssout(name);

(B) ostringstream ssin(name);

(C) ssin(name);

(D) istringstream ssin(name);

7. When we're done reading/writing a file, what is the best thing to do with the file?

(A) Delete it

(B) Close it

(C) Open it

(D) None of the above

8. What is the difference between Classes and Structs in C++?

(A) Structs cannot have member functions.

(B) A class is private by default while a struct is public by default

(C) Classes can have structs as member variables, but structs cannot have classes as member variables.

(D) All of the above

9. Which set of code is a valid header guard?

(A) #ifndef POINT_H
...
#endif

(B) #ifndef POINT_H
#define POINT_H
...
#endif

(C) #define POINT_H
#ifndef POINT_H
...
#endif

(D) #ifndef point.h
#define point.h
...
#endif

10. What does the following code do?
vector<vector<Point>> Graphs;

(A) Create a vector of Point objects labeled Graphs

(B) Create a vector of graphs (i.e. has multiple points) labeled Graphs

(C) Create a 2D vector holding graph objects labeled Graphs

(D) Generate a syntax error

11. What type of function is the following code?
Point::Point (int x, int y) : x(x), y(y) {}

(A) A destructor for the Point class

(B) An overloaded constructor for the Point class

(C) A helper function for the Point class

(D) A object function for the Point class

12. Which code is the correct way to get the length of an array **a**

(A) a.size()

(B) len(a)

(C) a.length()

(D) len(a.size())

(E) none of the above

13. Given the code and compilation below, which option will run the code without errors?

```
main(int argc, char** argv) {
   if (argc > 3) {
      ...
   }
   else
      throw std::run_time("Bad Use");
   }
}
```

~/root/: g++ main.cpp -o a.out

(A) ./a.out grades.txt students.csv test.txt

(B) ./a.out students.csv test.txt

(C) ./a.out grades.txt test.txt students.csv schools.csv

(D) a.exe grades.txt test.txt

(E) Both A and C

(F) All of the above

14. Does this code work properly?

```
void Point::setPoints(int x, int y) {
   x = x;
   y = y;
}
```

(A) Yes

(B) No, the function does not compile as there are syntax errors

(C) No, this→should be appended to the rhs of x and y in the function.

(D) No, this→should be appended to the lhs of x and y in the function.

(E) No, this→should be appended to the x and y in the parameter of the function.

15. Given the code below, what would be stored in **Name** after the function ends?

```
const name Student::foo(string& name) const {
    name = name;
    name = "\t\"Bob Ross\""

    return name;
}
```

(A) Unknown

(B)   "Bob Ross"

(C) "Bob Ross"

(D) Bob Ross

(E)

(F) Error

16. Which pseudo code should replace /* HELP */ for this algorithm to perform its task?

```
Algorithm UnknownAlg (vector<double>& v)
    sz = v size
    for i=0 to sz-1
        min = i
        for j=i+1 to sz-1
            /* HELP */
        end
        temp = v[i]
        v[i] = v[min]
        v[min] = temp
    end
end
```

(A) **if** v.at(min) < v[j]
     min = j

(B) **if** v.at(j) < v[min]
     j = min

(C) **if** v.at(j) < v[min]
     min = j

(D) temp = v[i]
     v[i] = v[min]
     v[min] = temp

(E) temp = v[i]
     v[temp] = v[min]
     v[min] = v[i]

17. **Bonus:** What might be a reason to use namespaces

(A) To avoid variable name conflicts

(B) To avoid class name conflicts

(C) To organize class and function uses into more groups

(D) If you feel like it

(E) All of the above

18. Coding Portion: https://docs.google.com/document/d/18eM1sNLwHuae5Pz-TMRctRyYFtktoslsmRzxoznLVNw/edit?usp=sharing

Note: The grading breakdown is not the same as your actual midterm (to my knowledge), it is simply a way for you to grade yourself and see a potential score.

(A) Got it

(B) Don'ts Gots Its