Midterm 3 Study Guide

| Due No due date | Points 25 | Questions 25 | Time Limit 30 Minutes | Allowed Attempts Unlimited |

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Attempt History

	Attempt	Time	Score
KEPT	Attempt 16	30 minutes	24 out of 25
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	Attempt 4	21 minutes	23 out of 25
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	Attempt 1	27 minutes	21 out of 25

ⓘ Correct answers are hidden.

Submitted Jul 19 at 12:33pm

Question 1   1 / 1 pts

Which of the following loop patterns are used here?

```cpp
string s{"Hello CS 150"};
while (s.size())
{
    if (s.at(0) == 'C') break;
    s = s.substr(1);
}
cout << s << endl;
```

- [ ] iterator or range loop
- [ ] limit loop
- [x] loop-and-a-half
- [ ] primed loop
- [x] sentinel loop
- [x] counter-controlled loop
- [ ] data loop
- [ ] inline test

Question 2   1 / 1 pts

Functions with generic (or type) parameters are known as template functions.

- (•) True
- ( ) False

Question 3   1 / 1 pts

Which of the following loop patterns are used here?

```cpp
size_t pos = 0;
char ch;
in.get(ch);
while (ch != 'Q')
{
    pos++;
    in.get(ch);
}
```
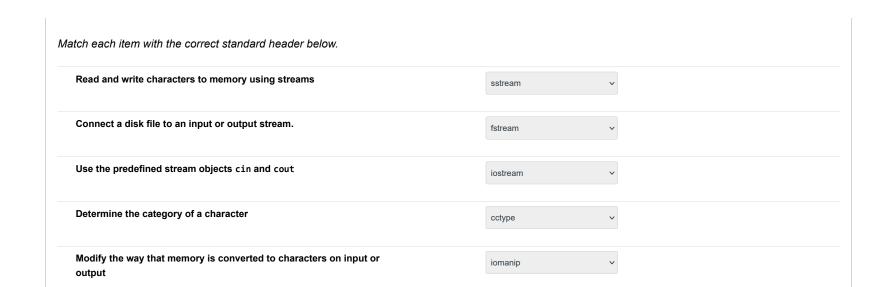
```
}
```

- ☐ counter-controlled loop
- ☑ sentinel loop
- ☑ primed loop
- ☐ limit loop
- ☐ data loop
- ☐ loop-and-a-half
- ☐ iterator or range loop
- ☐ inline test

Incorrect **Question 4**   0 / 1 pts

What prints?

```cpp
string s("hello");
try {
    if (s.size() > 20) throw 42;
    if (isupper(s.back())) throw "goodbye";
    if (s == "Hello") throw string("hello");
    s[s.size()] = 'x';
    cout << "one\n";
}
catch (const int& e) { cout << "two\n"; }
catch (const string& e) { cout << "three\n"; }
catch (exception& e)  { cout << "four\n"; }
catch (...) { cout << "five\n"; }
```

- ⦿ Undefined
- ◯ three
- ◯ five
- ◯ four
- ◯ two
- ◯ one

Question 5   1 / 1 pts

What happens when you execute the following (erroneous) code:

```cpp
cout << stoi(42.5) << endl;
```

- ◯ No conversion takes place and the output stream is placed in a failed state.
- ◯ The double 42.5 is truncated to 42 and printed
- ◯ An exception is thrown, which may be caught
- ⦿ The code does not compile because the argument is the wrong type.
- ◯ The program prints an error message and terminates since you cannot convert a double to an int

---

Question 6   1 / 1 pts

Which line fails to work correctly?

```cpp
template <typename T>
void print(const T& item)
{
    cout << item << endl;
}
```

- ⦿ None of these
- ◯ print(3 + 2.2);
- ◯ print("hello");
- ◯ print(2 + 2);
- ◯ print(string("goodbye"));

Question 7   1 / 1 pts

Match each item with the correct standard header below.

Read and write characters to memory using streams	sstream
Connect a disk file to an input or output stream.	fstream
Use the predefined stream objects `cin` and `cout`	iostream
Determine the category of a character	cctype
Modify the way that memory is converted to characters on input or output	iomanip

---

Question 8   1 / 1 pts

What is true about this piece of code?

```cpp
template <typename T, typename U>
T pickle(T& a, const U& b) {
    a += b;
    return b;
}

int main()
{
    int x = 42;
    auto a = pickle(x, 4.5);
    cout << a << endl;
    cout << x << endl;
}
```

☐ This code has a syntax error.

☐ In main, x prints 46.5

☑ In main, a prints 4

☐ In main, a prints 4.5

☑ In main, x prints 46

Question 9   1 / 1 pts

A(n) _____ is a statement about a condition which **must be true** when it is encountered in your code.

○ exception

○ postcondition

○ precondition

◉ assertion

Question 10   1 / 1 pts

Assuming the following variable definition, which statement creates an object which refers to the first element in **v**, and which allows you to change **v**?

```cpp
vector<double> v{1.2, 2.3, 3.4};
```

◉ `auto a = begin(v);`

○ `auto d = cend(v);`

○ None of these

○ `auto b = end(v);`

○ `auto c = cbegin(v);`

Question 11   1 / 1 pts

To count the number of elements in a `vector` that match a particular condition, use the STL function:

○ `find`

○ count_if

○ count

○ minmax_element

○ search

Question 12   1 / 1 pts

Assuming the following variable definition, which statement creates an object which refers to a position immediately following the last element in **v** and which allows you to change the elements in **v**?

```
vector<double> v{1.2, 2.3, 3.4};
```

○ `auto c = cbegin(v);`

○ `auto d = cend(v);`

○ `auto a = begin(v);`

○ None of these

◉ `auto b = end(v);`

Incorrect

Question 13   0 / 1 pts

Assume `vector<int> v;` Writing `cout << v.front();` throws a runtime exception.

◉ True

○ False

Question 14   1 / 1 pts

When passing a structure variable to a function, use ***non-const reference*** if the intent is to modify the actual argument.

◉ True

○ False

Question 15   1 / 1 pts

User-defined scalar types are created with the `enum class` keywords in C++.

◉ True

○ False

Incorrect

Question 16   0 / 1 pts

Which line will not compile?

```
int main()
{
    vector<int> v{1, 2, 3};
    auto size = v.size();

    cout << v.back() << endl;      // 1.
    cout << v.front() << endl;     // 2.
    cout << v.at(0) << endl;       // 3.
    cout << v.at(size) << endl;    // 4.
    cout << v.pop_back() << endl;  // 5.
}
```

◉ 4

○ 5

○ 1

○ 2

○ 3

Incorrect

Question 17   0 / 1 pts

Assuming the following variable definition, which statement creates an object which refers to the last element in **v** and which prohibits you from changing **v**?

```
vector<double> v{1.2, 2.3, 3.4};
```

- ○ `auto a = begin(v);`
- ○ `auto c = cbegin(v);`
- ○ `auto b = end(v);`
- ◉ `auto d = cend(v);`
- ○ None of these

Question 18   1 / 1 pts

What is printed when you run this code?

```
int *n{nullptr};
cout << &n << endl;
```

- ○ No output; compiler error.
- ○ The address value 0
- ○ The word "nullptr"
- ◉ The address value where *n* is stored
- ○ No compilation errors, but undefined behavior

Question 19   1 / 1 pts

Which line has ***undefined*** output?

```
double speed[5] = {. . .};
```

- ◉ `cout << speed[5] << endl;`
- ○ `cout << speed[1] << endl;`
- ○ `cout << speed[0] << endl;`
- ○ `cout << speed[4] << endl;`
- ○ None of these

Question 20   1 / 1 pts

C++ arrays have no support for bound-checking.

- ◉ True
- ○ False

Incorrect

Question 21   0 / 1 pts

What prints?

```
int a[] = {1, 3, 5, 7, 9};
int *p = a;
cout << ++*p;
cout << *p << endl;
```

- ○ 13
- ○ 22
- ○ 33
- ◉ None of these
- ○ 12

Question 22   1 / 1 pts

Which area of memory are global variables stored in?

- ○ Stack

○ Text

◉ Static storage area

○ Heap

Question 23   0 / 1 pts

Which of these lines correctly prints 3?

```
struct S {
    int a = 3;
    double b = 2.5;
};

S obj, *p = &obj;
```

○ cout << p.a << endl;

○ cout << *p.a << endl;

◉ cout << *(p).a << endl;

○ cout << *(p.a) << endl;

○ cout << (*p).a << endl;

Question 24   1 / 1 pts

C++ arrays can be allocated with a size of 0.

○ True

◉ False

Question 25   1 / 1 pts

Which assigns a value to the first position in *Letters*?

```
char letters[26];
```

○ *letters + 1 = 'b';

○ *(letters + 1) = 'a';

○ *letters = "a";

◉ *letters = 'a';

○ *letters[0] = 'a';