9/16: Week 4 Review Worksheet
CSE 302 - Data Structures

Name: **Total Correct:**

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Q1. Which of the following best describes an Abstract Data Type (ADT)?

- **A) A data structure built into the language**
- **B) A user-defined data type specifying operations without implementation details**
- **C) A variable that holds data of any type**
- **D) A template class for handling multiple data types**

Q2. Which of the following correctly defines a getter function?

- **A) A function that sets the value of a class variable**
- **B) A function that gets a pointer to a class object**
- **C) A function that returns the value of a class variable**
- **D) A function that initializes class variables**

Q3. Which of the following steps in software development involves converting requirements into a blueprint or plan?

- **A) Implementation**
- **B) Testing**
- **C) Design**
- **D) Maintenance**

Q4. What is the correct syntax for including a header file in C++?

- **A) #include(header_file)**

- B) #include <header_file.h>
- C) import "header_file.h"
- D) include <header_file>

Q5. What does the constructor of a class return?

- A) The size of the object
- B) A pointer to the object
- C) The class object itself
- D) Nothing

Q6. How does C++ support multiple implementations of a function with the same name (but different parameters)?

- A) Function overloading
- B) Function overriding
- C) Function template
- D) Virtual function

Q7. If a sorted list contains n elements, what is the time complexity of searching for an element using binary search?

- A) O(n)
- B) O(1)
- C) O(n^2)
- D) O(log n)

Q8. Given the following code:

```cpp
class Example {
    int value;
public:
    Example(int val) : value(val) {}
    int getValue() { return value; }
};
int main() {
    Example obj(10);
    std::cout << obj.getValue();
    return 0;
}
```

What will be the output?

a. 10
b. 5
c. 0
d. Garbage value

Q9. What is the purpose of the following header file code?

#ifndef MYCLASS_H

#define MYCLASS_H

class MyClass {

public:

    void doSomething();

};

#endif

A) To prevent multiple inclusions of the same header file

B) To define the implementation of `doSomething()`

C) To allocate memory for class objects

D) To specify the class name for future use

Q10. What is wrong with the following constructor?

```
class MyClass {

    int x;

public:

    MyClass() {

        x = 10;

    }

};
```

A) The constructor does not initialize the object properly

B) The constructor must have parameters

C) The constructor should use a member initializer list

D) Nothing is wrong

Q11. Which step in software development involves validating the functionality and correctness of the code?

- **A) Implementation**
- **B) Testing**
- **C) Design**

- D) Maintenance

Q12. What is the role of the `#include` directive in C++?

- A) To compile multiple files together
- B) To link multiple classes
- C) To include the contents of one file into another
- D) To include the standard library in the code