QUIZ

Started on	Monday, 25 December 2023, 9:02 PM
State	Finished
Completed on	Monday, 25 December 2023, 9:19 PM
Time taken	16 mins 40 secs
Grade	**10.00** out of 40.00 (**25**%)

Question 1

Complete

Mark 0.00 out of 1.00

How do you read data from a binary file into a C++ array?

- a. Using file.read(array, sizeof(array));
- b. Using file.read(reinterpret_cast<char*>(&array), sizeof(array));
- c. Using file.getline(array, sizeof(array));
- d. Using file >> array;

Question 2

Complete

Mark 0.00 out of 1.00

How do you write the contents of a C++ vector to a file?

- a. Using file << vec;
- b. Using file.write(vec);
- c. Using file.write(&vec, sizeof(vec));
- d. Using a loop and file << vec[i] << " ";

Question 3

Complete

Mark 1.00 out of 1.00

In AVL trees, what is the maximum height difference allowed between the left and right subtrees?

- a. 1
- b. 2
- c. 3
- d. 4

Question 4

Complete

Mark 1.00 out of 1.00

In C++, what happens if an exception is thrown inside a try block and is not caught?

- a. The finally block is executed
- b. The program continues to the next statement
- c. The catch block is executed
- d. The program terminates

Question 5

Complete

Mark 0.00 out of 1.00

In C++, what is the purpose of an rvalue reference?

- a. To represent a constant value
- b. To reference an rvalue
- c. To reference an lvalue
- d. To declare a constant pointer

Question 6

Complete

Mark 1.00 out of 1.00

In C++, what is the purpose of the constexpr keyword?

- a. To specify constant expressions at compile time
- b. To enable template specialization
- c. To indicate that a function should be inlined
- d. To define constant variables

Question 7

Complete

Mark 0.00 out of 1.00

In C++, what is the purpose of variadic templates?

- a. To define a variable with multiple types
- b. To enable type-safe variable arguments in functions
- c. To optimize memory allocation in templates
- d. To create template specializations

Question 8

Complete

Mark 0.00 out of 1.00

In C++, which element is dequeued first in a max-heap-based priority queue?

- a. The first element inserted
- b. The largest element
- c. The last element inserted
- d. The smallest element

Question 9

Complete

Mark 0.00 out of 1.00

In C++, which hash function is commonly used for hashing integers?

- a. Multiplication Hashing
- b. XOR Hashing
- c. Universal Hashing
- d. Division Hashing

Question 10

Complete

Mark 0.00 out of 1.00

In the Decorator design pattern, what is the purpose of decorators?

- a. To add new functionality to an object without altering its structure
- b. To define a family of algorithms
- c. To encapsulate object creation and make the system independent of the product classes
- d. To provide an interface for creating families of related or dependent objects

Question 11

Complete

Mark 1.00 out of 1.00

In the Factory Method design pattern, what is the purpose of the factory method?

- a. To define an interface for creating families of related or dependent objects
- b. To create an instance of a class without specifying its concrete type
- c. To provide an interface for creating objects in a superclass, but allow subclasses to alter the type of objects that will be created
- d. To encapsulate object creation and make the system independent of the product classes

Question 12

Complete

Mark 0.00 out of 1.00

What are coroutines used for in C++?

- a. To enable asynchronous programming
- b. To simplify exception handling
- c. To define constraints on template parameters
- d. To improve the performance of loops

Question 13

Complete

Mark 0.00 out of 1.00

What is a template template parameter in C++?

- a. A way to define optional template parameters
- b. A template that takes another template as a parameter
- c. A template parameter with multiple types
- d. A parameter passed to a template function

Question 14

Complete

Mark 0.00 out of 1.00

What is template metaprogramming in C++?

- a. A mechanism for encapsulating data and methods in a class
- b. A technique for writing recursive functions
- c. A way to optimize template functions
- d. A method for generating code at compile time

Question 15

Complete

Mark 0.00 out of 1.00

What is template specialization used for in C++?

- a. To define a generic template for any data type
- b. To override default template behavior for specific data types
- c. To define template parameters
- d. To create a template for constant values

Question 16

Complete

Mark 0.00 out of 1.00

What is the main purpose of the Singleton design pattern in C++?

- a. To provide a mechanism for inheritance
- b. To ensure that a class has only one member function
- c. To create a single instance of a class
- d. To implement polymorphism

Question 17

Complete

Mark 0.00 out of 1.00

What is the Observer design pattern used for in C++?

- a. To encapsulate the instantiation process of a class
- b. To represent an interface for creating objects
- c. To define a family of algorithms
- d. To define a one-to-many dependency between objects

Question 18

Complete

Mark 0.00 out of 1.00

```
#include <iostream>
using namespace std;
int main() {
    int x = 5;
    auto square = [&x]() { return x * x; };
    x = 10;
    cout << square();
    return 0;
}
```

- a. 50
- b. 25
- c. Compilation Error
- d. 100

Question 19

Complete

Mark 0.00 out of 1.00

```
#include <iostream>
#include <sstream>
using namespace std;
int main() {
   stringstream ss("123 456");
   int a, b;
   ss >> a >> b;
   cout << a + b;
   return 0;
}
```

- a. 579
- b. 123 456
- c. Compilation Error
- d. 123456

Question 20

Complete

Mark 1.00 out of 1.00

```
#include <iostream>
#include <stack>
using namespace std;
int main() {
   stack<int> s;
   s.push(1);
   s.push(2);
   cout << s.top();
   return 0;
}
```

- a. 2
- b. 1
- c. Runtime Error
- d. Compilation Error

Question 21

Complete

Mark 0.00 out of 1.00

```
#include <iostream>
using namespace std;
struct Node {
   int data;
   Node* next;
};
int main() {
   Node* head = nullptr;
   head = new Node{1, nullptr};
   head->next = new Node{2, nullptr};
   cout << head->data << " " << head->next->data;
   return 0;
}
```

a. 1 2

b. Runtime Error

c. 2 1

d. Compilation Error

Question 22

Complete

Mark 0.00 out of 1.00

```
#include <iostream>
using namespace std;
int main() {
   try {
      throw "An exception";
   } catch (const char* ex) {
      cout << ex;
   }
   return 0;
}
```

a. Runtime Error

b. An exception

c. Compilation Error

d. 0

Question 23

Complete

Mark 1.00 out of 1.00

What is the primary advantage of a trie data structure?

- a. Reduced memory consumption
- b. Efficient searching and insertion of elements
- c. Improved sorting capabilities
- d. Better cache locality

Question 24

Complete

Mark 1.00 out of 1.00

What is the primary benefit of using RAII in C++?

- a. Improved program performance
- b. Simplified function overloading
- c. Automatic resource deallocation
- d. Enhanced code readability

Question 25

Complete

Mark 1.00 out of 1.00

What is the primary goal of C++ reflection?

- a. To provide a mechanism for defining constraints on template parameters
- b. To simplify exception handling
- c. To improve the performance of loops
- d. To enable the inspection of program structures at runtime

Question 26

Complete

Mark 0.00 out of 1.00

What is the primary purpose of C++20 concepts?

- a. To introduce new data types in C++
- b. To provide a mechanism for defining constraints on template parameters
- c. To improve the performance of C++ programs
- d. To enhance the syntax of lambda expressions

Question 27

Complete

Mark 1.00 out of 1.00

What is the primary purpose of Dijkstra's algorithm in C++?

- a. Sorting elements in an array
- b. Finding the shortest path in a graph
- c. Searching for an element in a linked list
- d. Balancing a binary search tree

Question 28

Complete

Mark 0.00 out of 1.00

What is the purpose of a mutex in C++ multithreading?

- a. To prevent data races and ensure thread safety
- b. To schedule thread execution
- c. To terminate a thread
- d. To define the number of threads in a program

Question 29

Complete

Mark 0.00 out of 1.00

What is the purpose of C++ type traits?

- a. To provide information about the properties of types at compile time
- b. To improve the performance of loops
- c. To define new data types
- d. To simplify exception handling

Question 30

Complete

Mark 0.00 out of 1.00

What is the purpose of std::move in C++?

- a. To move an object to a different memory location
- b. To cast an object to a different data type
- c. To enable move semantics for an object
- d. To dynamically allocate memory for an object

Question 31

Complete

Mark 1.00 out of 1.00

What is the purpose of the std::ios::binary flag in C++ file I/O operations?

- a. To specify the file access mode
- b. To indicate that the file is in binary mode
- c. To enable encryption for the file
- d. To set the file as read-only

Question 32

Complete

Mark 0.00 out of 1.00

What is the purpose of the std::ios::failbit flag in C++ file I/O operations?

- a. To check if the file is open
- b. To check if the end-of-file has been reached
- c. To indicate a file write error
- d. To indicate a formatting error in input operations

Question 33

Complete

Mark 0.00 out of 1.00

What is the Strategy design pattern used for in C++?

- a. To create an instance of a class without specifying its concrete type
- b. To provide a way to access the elements of an aggregate object sequentially
- c. To define a family of algorithms, encapsulate each algorithm, and make them interchangeable
- d. To define a one-to-many dependency between objects

Question 34

Complete

Mark 0.00 out of 1.00

Which C++ feature allows you to write a generic function that can work with different data types?

- a. Function Overloading
- b. Templates
- c. Operator Overloading
- d. Inheritance

Question 35

Complete

Mark 0.00 out of 1.00

Which C++ standard library header is used for multi-threading?

- a. <atomic>
- b. <mutex>
- c. <condition_variable>
- d. <thread>

Question 36

Complete

Mark 0.00 out of 1.00

Which C++17 feature is used to simplify the initialization of class members?

- a. Aggregate Initialization
- b. Type Inference
- c. Structured Binding
- d. If Statements with Initializer

Question 37

Complete

Mark 0.00 out of 1.00

Which data structure is commonly used to represent a graph in C++?

- a. Linked List
- b. Heap
- c. Adjacency List
- d. Array

Question 38

Complete

Mark 0.00 out of 1.00

Which smart pointer in C++ is used to manage arrays?

- a. std::unique_ptr
- b. std::shared_ptr
- c. std::auto_ptr
- d. std::weak_ptr

Question 39

Complete

Mark 0.00 out of 1.00

Which STL container is commonly used to implement a queue in C++?

- a. std::list
- b. std::vector
- c. std::stack
- d. std::deque

Question 40

Complete

Mark 0.00 out of 1.00

Which traversal technique visits the left subtree, then the root, and finally the right subtree of a binary search tree?

- a. Pre-order
- b. In-order
- c. Post-order
- d. Level-order