QUIZIZZ Worksheets

Name

Class

Date

Training Session - Final Exam

Total questions: 35

Worksheet time: 32mins

1. If class A is friend of class B and if class B is friend of class C, which of the following is true?

   a) Class A is a friend of class C
   b) Class B cannot be a friend of any other class
   c) Class C is a friend of class A
   d) None of the above

2. Which of the following statement is true?

   a) Like class member, it can access the class members directly.
   b) Friend function can access public data only
   c) Scope of friend function is limited within the class where it is declared.
   d) A friend function can't be called using the object of the class

3. Which access specifier is used to make members of a class accessible only within the same class and its derived classes?

   a) protected
   b) private
   c) public

4. What is the purpose of the virtual keyword in C++?

   a) To access private members of a class
   b) To declare a variable
   c) To enable dynamic polymorphism
   d) To create an object

5. What is a destructor in C++?

   a) A function to allocate memory for objects
   b) A member function used to destroy objects
   c) A function to access private members of a class
   d) A special member function used to create objects

6. Which operator is used to access the member of a class through a pointer to an object?

a) *

b) ::

c) ->

d) .

7. What is multiple inheritance in C++?

a) The ability to create multiple instances of a class

b) The ability to have multiple constructors in a class

c) The ability of a class to inherit from multiple classes

d) The ability of a class to take multiple forms

8.

```
class Counter
{
private:
    static int count;
public:
    Counter()
    {
        count++;
    } static int getCount()
    {
        return count;
    }
};
int Counter::count = 0;
int main()
{
    Counter obj1, obj2, obj3;
    cout << "Count: " << Counter::getCount() << endl;
    return 0;
}
```

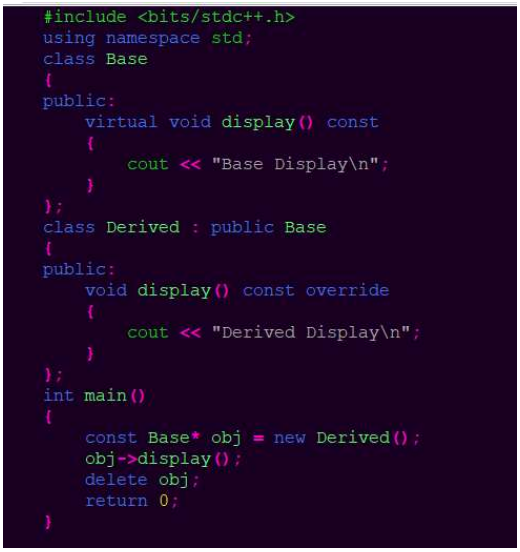
What is the purpose of the static keyword in the following C++ code?

a) To make the getCount function static

b) To make the count variable accessible only within the Counter class

c) To declare a static variable

d) To create an instance of the Counter class

9. 

```
#include <bits/stdc++.h>
using namespace std;
class Base
{
public:
    virtual void display() const
    {
        cout << "Base Display\n";
    }
};
class Derived : public Base
{
public:
    void display() const override
    {
        cout << "Derived Display\n";
    }
};
int main()
{
    const Base* obj = new Derived();
    obj->display();
    delete obj;
    return 0;
}
```

a) Base Display

b) Runtime Error

c) Compilation Error

d) Derived Display

10. What is the purpose of the friend keyword in the following C++ code?

```
class B;
class A
{
private:
int value;
public:
A(int v) : value(v) {}
friend void showValue(const A& a, const B& b);
};
class B
{
private:
int value;
public:
B(int v) : value(v) {}
friend void showValue(const A& a, const B& b);
};
void showValue(const A& a, const B& b)
{
cout << "A's value: " << a.value << ", B's value: " << b.value << endl;
}
int main()
{
A objA(5);
B objB(10);
showValue(objA, objB);
return 0;
}
```

a) To create a friendship between classes A and B

b) To create an instance of the A and B classes

c) To enable dynamic polymorphism

d) To declare a function named showValue

11. In a SQL SELECT statement, what does the WHERE clause do?

a) It specifies the sorting order of the result set

b) It joins multiple tables together

c) It filters the rows based on a condition

d) It specifies the columns to be selected

12. Which type of JOIN returns all rows when there is a match in one of the tables, and NULL values for columns from the table that doesn't have a match?

a) LEFT JOIN
b) INNER JOIN
c) FULL JOIN
d) RIGHT JOIN

13. What is the purpose of the SQL GROUP BY clause?

a) To group rows that have the same values in specified columns
b) To sort the result set in ascending or descending order
c) To filter rows based on a condition
d) To perform calculations on columns in the SELECT statement

14. Which of the following is an aggregate function in SQL?

a) AVG
b) UPPER
c) CONCAT
d) SUBSTRING

15. What is the syntax of FULL JOIN in MySql?

a) SELECT * FROM t1 FULL JOIN t2 ON t1.id = t2.id
b) SELECT * FROM t1 JOIN t2 ON t1.id = t2.id
c) SELECT * FROM t1 LEFT JOIN t2 ON t1.id = t2.id UNION SELECT * FROM t1 RIGHT JOIN t2 ON t1.id = t2.id

16. What is a subquery in SQL?

a) A query that includes aggregate functions
b) A query that is nested inside another query
c) A query that updates data in a table
d) A query that retrieves data from multiple tables

17. What is a database trigger?

a) A type of join operation between two tables
b) A stored procedure that is automatically executed when a specific event occurs
c) A table that is automatically created by the database system
d) A mechanism to prevent unauthorized access to the database

18. In a GROUP BY clause, which of the following aggregate functions can be used to calculate the total number of rows in each group?

a) SUM
b) COUNT
c) MAX
d) AVG

19. What is the purpose of the SQL HAVING clause?

a) To sort the result set in ascending or descending order
b) To filter rows based on a condition
c) To specify the columns to be selected
d) To filter grouped rows based on a condition

20. In a GROUP BY clause, how can you group the result set based on multiple columns?

a) Separate the columns with commas
b) Use the GROUP BY keyword for each column
c) Use the GROUP BY ALL keyword
d) It's not possible to group by multiple columns

21. What is the time complexity of a linear search in an array of size N?

a) O(N*N)
b) O(N)
c) O(logN)
d) O(NlogN)

22. Which data structure is best suited for implementing a stack?

a) Queue
b) Tree
c) Array
d) Linked List

23. What is the space complexity of quicksort algorithm?

a) O(N)
b) O(N*N)
c) O(logN)
d) O(NlogN)

24. Which sorting algorithm has the worst time complexity?

a) Quick Sort
b) Bubble Sort
c) Merge Sort
d) Insertion Sort

25. What is the time complexity of inserting an element at the end of a dynamic array (assuming no resizing is needed)?

a) O(NlogN)
b) O(N)
c) O(logN)
d) O(1)

26. What is the best-case time complexity of the linear search algorithm?

a) O(1)
b) O(N*N)
c) O(logN)
d) O(N)

27. In a binary tree, what is the maximum number of nodes at level d? Level starts from 0.

a) (2^d)-1
b) 2^d
c) d*d
d) 2^(d-1)

28. What will be the worst time complexity of searching a node in BST?

a) O(logN)
b) O(N)
c) O(NlogN)
d) O(2^N)

29. What is the main difference between a Min Heap and a Max Heap?

a) Max Heap has the smallest element at the root.
b) Min Heap has the smallest element at the root.
c) Both have the same structure.

30. What is the in-order traversal of a Binary Tree?

a) Right, Root, Left
b) Root, Left, Right
c) Left, Root, Right

31. Which of the following is an example of an undirected graph?

a) Web page hierarchy
b) Social network
c) File system hierarchy

32. What is the difference between Dijkstra's algorithm and Bellman-Ford algorithm for single-source shortest paths?

a) Dijkstra's is for weighted graphs, Bellman-Ford is for unweighted graphs.

b) Dijkstra's cannot handle negative weights, Bellman-Ford can.

c) Bellman-Ford has a lower time complexity.

33. Which algorithm is used for all pair shortest path?

a) Floyd warshall

b) Bellman ford

c) 0-1 Knapsack

d) Kruskal's

34. Which algorithm does kruskal's algorithm follow?

a) Set Union

b) KMP

c) Union Find

d) Set Intersection

35. How can we detect cycle on a undirected graph?

a) Using DSU

b) All of the above

c) Using BFS

d) Using DFS

Answer Keys

1. d) None of the above
2. d) A friend function can't be called using the object of the class
3. a) protected
4. c) To enable dynamic polymorphism
5. b) A member function used to destroy objects
6. c) ->
7. c) The ability of a class to inherit from multiple classes
8. c) To declare a static variable
9. d) Derived Display
10. a) To create a friendship between classes A and B
11. c) It filters the rows based on a condition
12. a) LEFT JOIN, d) RIGHT JOIN
13. a) To group rows that have the same values in specified columns
14. a) AVG
15. c) SELECT * FROM t1 LEFT JOIN t2 ON t1.id = t2.id UNION SELECT * FROM t1 RIGHT JOIN t2 ON t1.id = t2.id
16. b) A query that is nested inside another query
17. b) A stored procedure that is automatically executed when a specific event occurs
18. b) COUNT
19. d) To filter grouped rows based on a condition
20. a) Separate the columns with commas
21. b) O(N)
22. d) Linked List
23. c) O(logN)
24. b) Bubble Sort
25. d) O(1)
26. a) O(1)
27. b) 2^d
28. a) O(logN)
29. b) Min Heap has the smallest element at the root.
30. c) Left, Root, Right
31. b) Social network
32. b) Dijkstra's cannot handle negative weights, Bellman-Ford can.
33. a) Floyd warshall

34. c) Union Find

35. b) All of the above