

Answer the following questions.

1. State True or False: A static member variable is shared by all instances of a class.
2. In the definition of a derived class if the access-mode for the base class is not included, the corresponding access mode is set to `protected` by default.

3. State True or False: The following statement is valid in C++ but not in C.

```
string s = "HELLO";
```

4. State True or False: The following Structure definition is valid in C++.

```
struct base {  
public:  
    int a;  
private:  
    int b;  
protected:  
    int c;  
};
```

5. State True or False: Given an object `ObjA` of the class `A`, the static member `count` of the class can be accessed using the following statement.

```
ObjA.count;
```

6. State True or False: A destructor is called when the block that declares an object of a class ends.

7. State True or False: An `emplace` operation avoids unnecessary copy of object and does the insertion more efficiently than `insert` operation.

8. What does the capacity of a vector refer to in C++?

- a) The number of elements currently stored in the vector
- b) The maximum number of elements that can be stored in the vector without the need for reallocation
- c) The maximum size to which the vector can grow due to implementation limitations
- d) The unused memory space of the vector

9. Which of the following statements declares a vector of integer values?

- a) `std::vector<integer> vecOfInts;`
- b) `std::vector int <vecOfInts>;`
- c) `std::vector(int) vecOfInts;`
- d) `std::vector<int> vecOfInts;`

10. What is true about this statement in C++:

```
std::vector<int> vecInts(5);
```

- a) Initialize a vector with 5 integer values, each set to default value of 0.
- b) Initialize a vector with 5 integer values, each set to garbage.
- c) Initialize a Vector with 5 integer values, each set to default value of 1.

11. Which of the following stream classes is used for only writing to a file?

- a) `ofstream`
- b) `ifstream`
- c) `fstream`
- d) `iostream`

12. What do the following statements do?

```
ofstream stream; stream.open("data.txt");
```

- a) Opens the file `data.txt` for input.
- b) Opens the file `data.txt` for output, the statement fails if the file already exists.
- c) Opens the file `data.txt` for output, the contents of the file are destroyed if the file already exists.
- d) Opens the file `data.txt` for input, the statement fails if the file does not exist.

13. Write a C++ statement that will declare and open a binary file `picture.gif` for input.