Class and Object

Question 1 CORRECT

What is the difference between struct and class in C++?

A All members of a structure are public and structures don't have constructors and destructors

Members of a class are private by default and members of struct are public by default. When deriving a struct from a class/struct, default access-specifier for a base class/struct is public and when deriving a class, default access specifier is private.

C All members of a structure are public and structures don't have virtual functions

D All of the above

Discuss it

Question 1 Explanation:
See Structure vs class in C++

Question 2 CORRECT

Predict the output of following C++ program

```
#include<iostream>
using namespace std;

class Empty {};

int main()
{
  cout << sizeof(Empty);
  return 0;
}
```

Run on IDE

A non-zero value

B 0

C Compiler Error

D Runtime Error

Discuss it

Question 2 Explanation:
See Why is the size of an empty class not zero in C++

Question 3 CORRECT

```
class Test {
    int x;
};
int main()
{
  Test t;
  cout << t.x;
  return 0;
}
```

Run on IDE

A 0

B Garbage Value

Compiler Error

Discuss it

Question 3 Explanation:
In C++, the default access is private. Since x is a private member of Test, it is compiler error to access it outside the class.

Question 4 CORRECT

Which of the following is true?

A All objects of a class share all data members of class

Objects of a class do not share non-static members. Every object has its own copy.

C Objects of a class do not share codes of non-static methods, they have their own copy

D None of the above

Discuss it

Question 4 Explanation:
Every object maintains a copy of non-static data members. For example, let Student be a class with data members as name, year, batch. Every object of student will have its own name, year and batch. On a side note, static data members are shared among objects. All objects share codes of all methods. For example, every student object uses same logic to find out grades or any other method.

Question 5 CORRECT

Assume that an integer and a pointer each takes 4 bytes. Also, assume that there is no alignment in objects. Predict the output following program.

```
#include<iostream>
using namespace std;
```

```
class Test
{
    static int x;
    int *ptr;
    int y;
};

int main()
{
    Test t;
    cout << sizeof(t) << " ";
    cout << sizeof(Test *);
}
```

Run on IDE

A 12 4

B 12 12

8 4

D 8 8

Discuss it

Question 5 Explanation:

For a compiler where pointers take 4 bytes, the statement "sizeof(Test *)" returns 4 (size of the pointer ptr). The statement "sizeof(t)" returns 8. Since static is not associated with each object of the class, we get (8 not 12).

Question 6 CORRECT

Which of the following is true about the following program

```
#include <iostream>
class Test
{
public:
    int i;
    void get();
};
void Test::get()
{
    std::cout << "Enter the value of i: ";
    std::cin >> i;
}
Test t;  // Global object
int main()
{
```

```
    Test t;  // local object
    t.get();
    std::cout << "value of i in local t: "<<t.i<<'\n';
    ::t.get();
    std::cout << "value of i in global t: "<<::t.i<<'\n';
    return 0;
}
```

Run on IDE

Contributed by **Pravasi Meet**

A Compiler Error: Cannot have two objects with same class name

B Compiler Error in Line "::t.get();"

Compiles and runs fine

Discuss it

Question 6 Explanation:
The above program compiles & runs fine. Like variables it is possible to create 2 objects having same name & in different scope.

You have completed 6/6 questions .
Your score is 100%.

But how is that possible.Here int size is 4 and pointer size is 8 then how come 16 is the answer for Test object.Tried it on geeksforgeeks IDE.

• Reply • Share ›

Kartik superman • 2 months ago

There may be structure/class alignment happening that increases size.

1 • Reply • Share ›

superman Kartik • 2 months ago

Yes @Kartik you are absolutely right.Thanks for replying.I ran the program after adding char variables in the class and found that alignment is indeed the case because upto adding 4 more char doesn't changed the output!

• Reply • Share ›

Mohit • 2 months ago

In q6, Test t creates a reference. How does it creates object?

• Reply • Share ›

sonika • 4 months ago

first question answer should be the (d) option i.e all of the above..... if not then why????

• Reply • Share ›

Shailesh sonika • 2 months ago

Following is the sample program which works fine.

```
#include<iostream>

struct A

{

int a;

virtual void disp()

{

std::cout << " A::disp() called " << std::endl;

}

A()

{
```

see more

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Akki sonika • 4 months ago

because in c++ structure can also have constructor, distructor as well as virtual functions.

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