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NPTEL (https://swayam.gov.in/explorer?ncCode=NPTEL) » Programming in C++ (course)

Announcements (announcements) **About the Course (preview)** Ask a Question (forum)

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Unit 6 - Week 4

Course outline

How does an NPTEL online course work?

Week 0

Week 1

Week 2

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Week 4

- Module 16 : Static Members (Lecture 31) (unit?unit=56&lesson=57)
- Module 17 : Friend Function and Friend Class (Lecture 32) (unit?unit=56&lesson=58)

Assignment 4

The due date for submitting this assignment has passed. **Due on 2020-10-14, 23:59 IST.**

Assignment submitted on 2020-10-14, 19:30 IST

1) ***2 points***

Consider the following program.

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

class myClass {
    int data;
public:
    myClass(int x) : data(x) {}
    ________________________;    // LINE-1
};

void display(const myClass &m) {
    cout << m.data << endl;
}

int main() {
    myClass m(10);

    display(m);

    return 0;
}
```

This program will give error without `LINE-1`. Fill in the blank at `LINE-1` to avoid any compilation error.

- [x] a) `friend void display(const myClass&)`
- [x] b) `void friend display(const myClass&)`
- [ ] c) `void display(const myClass&)`
- [ ] d) `friend display(const myClass&)`

Yes, the answer is correct.
Score: 2

Accepted Answers:
a) `friend void display(const myClass&)`
b) `void friend display(const myClass&)`

Week 7

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2) Consider the following program. ***2 points***

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

class A {
    int data;
public:
    A(int x) : data(x) { cout << data << " "; }
    ~A() { cout << data << " "; }
    void show() {
        static A a(5);
    }
};

int main() {
    A a1(10);

    a1.show();

    return 0;
}
```

What will be the output of the following code?

- a) 5 10 5 10
- b) 10 5 10 5
- c) 10 5 5 10
- d) 5 10 10 5

Yes, the answer is correct.
Score: 2

Accepted Answers:
b) 10 5 10 5

3) ***2 points***

Consider the following program.

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

class Complex {
    int re, im;
public:
    Complex(int r, int i) : re(r), im(i) { }
    Complex& operator++() {   // LINE-1
        ++re;
        return *this;
    }
    Complex operator++(int) { // LINE-2
        Complex c(re, im);
        ++im;
        return c;
    }
    void display() { cout << re << " " << im << endl; }
};

int main() {
    Complex c(5, 5);

    ++c;
    Complex c1 = c++;

    c1.display();

     return 0;
 }
```

What will be the output?

- a) 5 5
- b) 6 6
- c) 6 5
- d) 5 6

Yes, the answer is correct.
Score: 2

Accepted Answers:
c) 6 5

4) Consider the following program. **2 points**

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

class myClass {
    static int i = 5;
public:
    void display() { cout << i << endl; }
};

int main() {
    myClass m;

    m.display();

    return 0;
}
```

What will be the output/error?

- a) 5
- b) 0
- c) <Unpredicted value>
- d) Error: C++ forbids in-class initialization of non-const static member.

Yes, the answer is correct.
Score: 2

Accepted Answers:
d) Error: C++ forbids in-class initialization of non-const static member.

5) **2 points**

What will be the output of the following program.

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

class Complex {
    int re, im;
public:
    Complex(int r = 0, int i = 0) : re(r), im(i) { }
    Complex& operator<< (const Complex& c) {          // LINE-1
        cout << re + c.re << " " << im + c.im << endl;
        return *this;
    }
    friend Complex& operator<<(ostream& os, Complex& c);
};

Complex& operator<<(ostream&, Complex& c) {        // LINE-2
    cout << c.re << " " << c.im << endl;
    return c;
}

int main() {
    Complex c1(2, 5), c2(4, 6);

    cout << c1 << c2;

    return 0;
}
```

- a) 2 5
  4 6
- b) 6 5
  2 11
- c) 6 11
  2 5
- d) 2 5
  6 11

Yes, the answer is correct.
Score: 2

Accepted Answers:
d) 2 5
6 11

6) ***2 points***

Consider the following program.

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

int var = 0;
namespace name {
    int var = 2;
}

int main() {
    using namespace name;
    int var = 1;

    cout << ::var << " " << var << " " << name::var; // LINE-1

    return 0;
}
```

What will be the output?

- a) 0 1 2
- b) 1 0 2
- c) 0 2 1
- d) 1 2 0

Yes, the answer is correct.
Score: 2

Accepted Answers:
a) 0 1 2

7) Consider the program below. **2 points**

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

class Test {
    static int X;
public:
    static void print() {
        cout << X;
    }
    static update(int a) {  // LINE-1
        X = a;
    }
};

int Test::X = 10;

int main() {
    Test::update(4);
    Test::print();

    return 0;
}
```

Identify the correct replacement/s of `LINE-1` for output `4`.

- [x] a) `void static update(int a)`
- [x] b) `static void update(int a)`
- [ ] c) `void update(int a)`
- [ ] d) `friend void update(int a)`

Yes, the answer is correct.
Score: 2

Accepted Answers:

a) `void static update(int a)`

b) `static void update(int a)`

8) Consider the program below. **2 points**

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

class myClass {
    int X;
    static myClass *instance;
    myClass(int i) : X(i) { }
public:
    int getVal() { return X; }
    static myClass * createInstance(int x) {
        if (!instance) {
            instance = new myClass(x);
        }
        return instance;
    }
};

myClass *myClass::instance = 0;

void foo() {
    myClass *s = myClass::createInstance(1);
    cout << s->getVal() << " ";
}

void fun() {
    myClass *s = myClass::createInstance(2);
    cout << s->getVal() << " ";
}

 int main() {
     foo();
     fun();

     myClass *s = myClass::createInstance(3);
     cout << s->getVal() << " ";
     return 0;
 }
```

What will be the output?

- a) 1 2 3
- b) 3 2 1
- c) 1 1 1

d) 3 3 3

Yes, the answer is correct.
Score: 2

Accepted Answers:
c) 1 1 1

9) Consider the program below. **2 points**

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

int x = 10;
namespace e {
    int x = 5;
}

int main() {
    --------------------     // LINE-1
        cout << x;

    return 0;
}
```

Fill in the blank at LINE-1 so that it will print 5.

a) using namespace e;
b) using namespace e::x;
c) using e::x;
d) using namespace ::x;

Yes, the answer is correct.
Score: 2

Accepted Answers:
c) using e::x;