Unit 6 - Week 4

Assignment 4

The due date for submitting this assignment has passed.

Due on 2020-10-14, 23:59 IST.

Assignment submitted on 2020-10-13, 01:40 IST

1) Consider the following program. *2 points*

```
#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.

- a) `friend void display(const myClass&)`
- 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&)`

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) Consider the following program. *2 points*

```
#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) What will be the output of the following program. *2 points*

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

```
#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.

- a) `void static update(int a)`
- 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;`