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Unit 4 - Week 2

Assignment 2

The due date for submitting this assignment has passed. **Due on 2020-09-30, 23:59 IST.**

Assignment submitted on 2020-09-29, 09:51 IST

1) Consider the below code segment. ***2 points***

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

#define X 5

int main() {
    int n = 10;
    X = n; // LINE-1

    cout << X;

    return 0;
}
```

What will be the output/error of the above code?

- a) 5
- b) 10
- c) 0

d) Compilation error at LINE-1: lvalue required as left operand of assignment.

Yes, the answer is correct.
Score: 2

Accepted Answers:
d) Compilation error at LINE-1: lvalue required as left operand of assignment.

2) Consider the following code segment. **2 points**

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

int main() {
    int n = 2, m = 3;
    int * const p;  // LINE-1

    p = &n;         // LINE-2
    cout << *p;

    return 0;
}
```

What will be the output of /error in the above code?

- [ ] a) 2
- [ ] b) ⟨*garbage_value*⟩
- [x] c) Compilation error at LINE-1: uninitialized const 'p'.
- [x] d) Compilation error at LINE-2: assignment of read-only variable 'p'.

Yes, the answer is correct.
Score: 2

Accepted Answers:
c) Compilation error at LINE-1: uninitialized const 'p'.
d) Compilation error at LINE-2: assignment of read-only variable 'p'.

3) **2 points**

Consider below code segment.

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

struct complex{
    int re, im;
    void  print(){ cout << re << "+i" << im; }
};

_____________________________________{          //Line-1
    struct complex c3={0,0};
    c3.re = c1.re+c2.re;
    c3.im = c1.im+c2.im;
    return c3;
}

int main(){
    struct complex c1={2,5},c2{3,-2};
    struct complex t = c1 + c2;
    t.print();
    return 0;
}
```

Complete operator overloading for structure `complex` at `Line-1` so that the output is "5+i3".

- [x] a) `complex operator+(complex &c1, complex &c2)`
- [x] b) `complex operator+(const complex &c1, const complex &c2)`
- [ ] c) `operator+(complex &c1, complex &c2)`
- [ ] d) `complex +(complex &c1, complex &c2)`

Yes, the answer is correct.
Score: 2

Accepted Answers:

a) `complex operator+(complex &c1, complex &c2)`

b) `complex operator+(const complex &c1, const complex &c2)`

4) ***2 points***

Consider the following code segment. What will be the output of the following program?

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

int main() {
    int a = 5;
    int &b = a;

    ++a;
    ++b;

    a = a + b;
    cout << a;

    return 0;
}
```

- a) 10
- b) 11
- c) 13
- d) 14

Yes, the answer is correct.
Score: 2

Accepted Answers:
d) 14

5) Consider the below program: **2 points**

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

void fun(int a = 0) { cout << "1st" << endl; }

void fun() { cout << "2nd" << endl; }

int main() {
    fun(); // LINE-1

    return 0;
}
```

What will be the output/error of the above code?

- a) 1st
- b) 2nd
- c) 1st
  2nd
- d) Compilation error at LINE-1: call of overloaded `fun()` is ambiguous.

No, the answer is incorrect.
Score: 0

Accepted Answers:
d) Compilation error at LINE-1: call of overloaded `fun()` is ambiguous.

6) **2 points**

Consider the following code segment.

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

int main() {
    int a = 2;
    int &ra = a;
    const int &cra = a;
    const int &cra_1 = a + 1;

    cout << (&a == &ra) << "  " << (&a == &cra) << "  " << (&a == &cra_1);

    return 0;
}
```

What will be the output of the above code?

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

Yes, the answer is correct.
Score: 2

Accepted Answers:
b) 1 1 0

7) What is the output/error in the following code? **2 points**

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

void fun(int &a, int b) {
    a = a + b;
}

int main() {
    int a = 10;

    fun(a, a);

    cout << a;

    return 0;
}
```

- a) 20
- b) 10
- c) 0
- d) ⟨*garbage_value*⟩

Yes, the answer is correct.
Score: 2

Accepted Answers:
a) 20

8) Consider the code segment below. **2 points**

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

#define MUL(x,y) x*y

int main() {
    int a = 10, b = 5, c, d;

    c = MUL(a, b + 1);
    d = MUL(a + 1, b);

    cout << c << " " << d;

    return 0;
}
```

What will be the output?

- a) 60 55

b) 51 15

c) 60 15

d) 51 55

Yes, the answer is correct.
Score: 2

Accepted Answers:
b) 51 15

9) Consider the code segment below. **2 points**

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

int main() {
    const int *a = new int[2]; // LINE-1

    cout << *a << " " << *(a + 1);

    return 0;
}
```

Modify LINE-1 such that it will print 5 10.

a) `const int *a = new int(2){5,10};`

b) `const int *a = new int[2]{5,10};`

c) `const int *a = new int[2](5,10);`

d) `const int *a = new int(2)(5,10);`

Yes, the answer is correct.
Score: 2

Accepted Answers:
b) `const int *a = new int[2]{5,10};`