



C++ Institute

CPP-22-02

CPP - C++ Certified Professional Programmer

QUESTION & ANSWERS

Question: 1

Which changes introduced independently will allow the code to compile and display 0 0 1 1 8 8 9 9 (choose all that apply)?

```
#include <iostream>
#include <set>
#include <vector>
using namespace std;
class A {
int a;
public:
A(int a):a(a){}
int getA() const { return a;}
/* Insert Code Here 1 */
};
/* Insert Code Here 2*/
int main(){
A t1={ 3, 4, 2, 1, 6, 5, 7, 9, 8, 0 };
set<A>s1(t1,t1+10);/* Replace Code Here 3 */
multiset<A> s1(s1.begin(),s1.end());/* Replace Code Here 4 */
s1.insert(s1.begin(),s1.end());
s1.erase(s1.lower_bound(2),s1.upper_bound(7));
multiset<A>::iterator i=s1.begin();/* Replace Code Here 5 */
```

- A. `operator int() const { return a;} inserted at Place 1`
- B. `bool operator < (const A & b) const { return a`
- C. `bool operator < (const A & b) const { return a`
- D. `struct R { bool operator ()(const A & a, const A & b) { return a.getA() inserted at Place 2`
`replacing line marked 3 with sets(t, t+10);`
`replacing line marked 4 with multiset s1(s.begin(),s.end());`
`replacing line marked 5 with multiset::iterator i=s1.begin();`

Answer: A,B,D

Question: 2

What happens when you attempt to compile and run the following code?

```
#include <vector>
#include <iostream>
#include <algorithm>
#include <functional>
using namespace std;
template<class T>struct Out {
ostream & out;
Out(ostream & o): out(o){}
void operator() (const T & val) { out<<val<<" "; };
int main() {
int t1[]={1,2,3,4,5,6,7,8,9,10};
int t2[]={1,2,3,4,5,6,7,8,9,10};
vector<int> v1(t1, t1+10);
vector<int> v2(t2, t2+10);
vector<int> v3(10);
transform(v1.begin(), v1.end(), v2.rbegin(), v3.begin(), minus<int>());
for_each(v3.rbegin(), v3.rend(), Out<int>(cout));cout<<endl;
return 0;
}
Program outputs:
```

- A. 9 7 5 3 1 ?1 ?3 ?5 ?? ?9
- B. ?1 ?3 ?5 ?? ?9 9 7 5 3 1
- C. 1 3 5 7 9 ?1 ?3 ?5 ?? ?9
- D. 1 3 5 7 9 ?1 ?3 ?5 ?? ?9
- E. ?9 ?? ?5 ?3 ?1 1 3 5 7 9

Answer: A

Question: 3

What will happen when you attempt to compile and run the code below, assuming that file test.in contains the following sequence: 1 2 3?

```
#include <iostream>
#include <fstream>
#include <string>
#include <list>
#include <algorithm>
using namespace std;
template<class T>struct Out {
    ostream & out;
    Out(ostream & o): out(o){}
    void operator() (const T & val ) {out<<val<<" "; } };
int main () {
    ifstream f("test.in");
    list<int> l;
    for( ; !f.fail() ; ) {
        int i;
        f>>i;
        l.push_back(i);
    }
    f.close();
    for_each(l.begin(), l.end(), Out<int>(cout));
    return 0;
}
```

Program will output:

- A. 1 2 3
- B. 1 2 3 3
- C. no output
- D. compilation error
- E. program runs forever without output

Answer: B

Question: 4

What happens when you attempt to compile and run the following code?

```
#include <vector>
#include <iostream>
#include <algorithm>
#include <functional>
using namespace std;
template<class T>struct Out {
    ostream & out;
    Out(ostream & o): out(o){}
    void operator() (const T & val ) { out<<val<<" "; } };
int main() {
    int t1[]={3,2,4,1,5};
    int t2[]={6,10,8,7,9};
    vector<int> v1(5);
    transform(t1,t1+5,t2,v1.rbegin(), plus<int>());
    for_each(v1.rbegin(), v1.rend(), Out<int>(cout));cout<<endl;
    return 0;
}
```

Program outputs:

- A. 9 12 12 8 14
- B. 14 8 12 12 9
- C. 3 2 4 1 5 6 10 8 7 9
- D. 1 2 3 4 5 6 7 8 9 10
- E. compilation error

Answer: A

Question: 5

What happens when you attempt to compile and run the following code?

```
#include <vector>
#include <iostream>
#include <algorithm>
using namespace std;
template<class T>struct Out {
ostream & out;
Out(ostream & o): out(o){}
void operator() (const T & val ) { out<<val<<" "; };
}
int main() {
int t1[]={3,2,4,1,5};
int t2[]={5,6,8,2,1};
vector<int> v1(10);
sort(t1, t1+5);
sort(t2, t2+5);
set_intersection(t1,t1+5,t2,t2+5,v1.begin());
for_each(v1.begin(), v1.end(), Out<int>(cout));cout<<endl;
return 0;
}
```

Program outputs:

- A. compilation error
- B. 1 2 3 4 5 6 8 0 0 0
- C. 1 2 3 4 5 6 8 2 1 0
- D. 1 1 2 2 3 4 5 5 6 8
- E. 1 2 5 0 0 0 0 0 0 0

Answer: E

Question: 6

What happens when you attempt to compile and run the following code?

```
#include <iostream>
#include <algorithm>
#include <vector>
#include <set>
using namespace std;
void myfunction(int i) {
cout << " " << i;
}
bool classifier(int v) {
return v%2==0;
}
int main() {
int t[] = { 1, 5, 2, 5, 2, 4, 4, 4, 3, 3, 1 };
vector<int> v1(t, t+10);
set<int> s1(t, t+10);
replace(v1.begin(), v1.end(), classifier, 10);
for_each(v1.begin(), v1.end(), myfunction);
return 0;
}
```

Program outputs:

- A. 1 5 10 5 10 10 10 3 3 1
- B. 1 5 2 5 2 4 4 3 3 1
- C. compilation error
- D. 10 10 2 10 2 4 4 10 10 10

Answer: C