C++ Institute

CPP-22-02

CPP - C++ Certified Professional Programmer

QUESTION & ANSWERS

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 t[] ={ 3, 4, 2, 1, 6, 5, 7, 9, 8, 0 };
set<A>s(t, t+10);/* Replace Code Here 3 */
multiset<A> s1(s.begin(),s.end());/* Replace Code Here 4 */
s1.insert(s.begin(),s.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

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 ?7 ?9

B. ?1 ?3 ?5 ?7 ?9 9 7 5 3 1

C. 1 3 5 7 9 ?1 ?3 ?5 ?7 ?9

D. 1 3 5 7 9 ?1 ?3 ?5 ?7 ?9

E. ?9 ?7 ?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;
}
```
Programwill 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, 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