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Exam : **CPP**

Title : C++ Certified Professional Programmer

Version : DEMO

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

```
#include <iostream>
#include <set>
#include <vector>
using namespace std;
int main(){
int t[] ={ 3, 4, 2, 1, 6, 5, 7, 9, 8, 0 };
vector<int>v(t, t+10);
multiset<int> s1(v.begin(),v.end());
s1.insert(v.begin(),v.end());
pair<multiset<int>::iterator,multiset<int>::iterator> range;
range = s1.equal_range(6);
while (range.first != range.second) {
cout<<*range.first<<" "; range.first++;
}
return 0;
}
```

A.program outputs: 6 6
B.program outputs: 5 7
C.program outputs: 5 5 6 6 7 7
D.program outputs: 5 5 7 7
E.program outputs: 1 1 6 6 5 5
Answer: A

2.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<<" ";
}
};
struct Sequence {
int start;
Sequence(int start):start(start){}
int operator()() {
return start++ ; }};
int main() {
vector<int> v1(10);
generate(v1.rbegin(), v1.rend(), Sequence(1));
```

```
rotate(v1.begin(),v1.begin() + 1, v1.end() );
for_each(v1.begin(), v1.end(), Out<int>(cout) );cout<<endl;
return 0;
}
```

Program outputs:

A.1 2 3 4 5 6 7 8 9 10

B.10 9 8 7 6 5 4 3 2 1

C.9 8 7 6 5 4 3 2 1 10

D.1 10 9 8 7 6 5 4 3 2

Answer: C

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

```
#include <iostream>
#include <fstream>
#include <string>
#include <list>
#include <algorithm>
#include <iomanip>
using namespace std;
class B { int val;
public:
B(int v=0):val(v){}
int getV() const {return val;}
operator int() const { return val; };};
template<class T>struct Out {
ostream & out;
Out(ostream & o): out(o){}
void operator() (const T & val ) {out<<setw(3)<<hex<<val; } };
int main () {
int t[] = {1, 2, 3, 4, 5, 6, 7, 8, 9, 10};
fstream f("test.out", ios::trunc|ios::out);
list<B> l(t, t+10);
for_each(l.begin(), l.end(), Out<B>(f));
f.close();
f.open("test.out");
for( ; f.good() ; ) {
B i;
f>>i;
cout<<i<<" ";
}
f.close();
return 0;
}
```

A.file test.out will be opened writing

B.file test.out will be truncated
C.file test.out will be opened for reading
D.compilation error
E.program will display sequence 1 2 3 4 5 6 7 8 9 10
Answer: D

4.What will happen when you attempt to compile and run the code below, assuming that you enter the following sequence: one two three<enter>?

```
#include <iostream>
#include <string>
using namespace std;
int main ()
{
string a;
cin>>a;
cout<<a<<endl;
return 0;
}
```

Program will output:
A.one
B.one two three
C.runtime exception
D.compilation error
E.the result is unspecified
Answer: A

5.What will happen when you attempt to compile and run the following code?

```
#include <iostream>
#include <map>
#include <vector>
#include <sstream>
#include <string>
using namespace std;
int main() {
int t[] = { 3, 4, 2, 1, 0, 3, 4, 1, 2, 0 };
vector<int> v(t, t + 10);
multimap<int, string> m;
for (vector<int>::iterator i = v.begin(); i != v.end(); i++) {
stringstream s;s << *i << *i;
m.insert(pair<int, string>(*i, s.str()));
}
pair<multimap<int, string>::iterator, multimap<int, string>::iterator> range;
range = m.equal_range(2);
for (multimap<int, string>::iterator i = range.first; i != range.second; i++) {
```

```
cout << i?>first << " ";
}
return 0;
}
```

The output will be:

A.2 2

B.1 2

C.1 3

D.2

E.0 2

Answer: A

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

```
#include <vector>
#include <iostream>
#include <algorithm>
using namespace std;
class B { int val;
public:
B(int v):val(v){}
int getV() const {return val;} bool operator < (const B & v) const { return val>v.val;} };
ostream & operator <<(ostream & out, const B & v) { out<<v.getV(); return out;}
template<class T>struct Out {
ostream & out;
Out(ostream & o): out(o){}
void operator() (const T & val ) { out<<val<<" "; } };
int main() {
B t1[]={3,2,4,1,5};
B t2[]={5,6,8,2,1};
vector<B> v1(10,0);
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<B>(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.5 2 1 0 0 0 0 0 0 0

E.1 2 5 0 0 0 0 0 0 0

Answer: D

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

```
#include <list>
#include <vector>
#include <iostream>
using namespace std;
int main ()
{
int t[] = {1, 2 ,3 ,4 ,5};
vector<int>v1(t, t+5);
list<int>l1;
l1.assign(v1.end(), v1.begin());
for(int i=0; i<l1.size(); i++)
{
cout<<l1.at(i)<<" ";
}
cout<<endl;
return 0;
}
```

A.program displays 5 4 3 2 1
B.program displays 1 2 3 4 5
C.compilation error
D.segmentation fault runtime exception
Answer: C

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

```
#include <vector>
#include <iostream>
#include <algorithm>
using namespace std;
class B { int val;
public:
B(int v):val(v){}
int getV() const {return val;} bool operator < (const B & v) const { return val<v.val;} };
ostream & operator <<(ostream & out, const B & v) { out<<v.getV(); return out;}
template<class T>struct Out {
ostream & out;
Out(ostream & o): out(o){}
void operator() (const T & val ) { out<<val<<" "; } };
int main() {
B t1[]={3,2,4,1,5};
B t2[]={6,10,8,7,9};
vector<B> v1(10);
sort(t1, t1+5);
sort(t2, t2+5);
```

```
merge(t1,t1+5,t2,t2+5,v1.begin());
for_each(v1.begin(), v1.end(), Out<B>(cout));cout<<endl;
return 0;
}
```

Program outputs:

A.1 2 3 4 5 6 10 8 7 9

B.3 2 4 1 5 6 7 8 9 10

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: E

9.Which sentence is correct about the code below?

```
#include <iostream>
#include <algorithm>
#include <vector>
using namespace std;
class A {
int a;
public:
A(int a) : a(a) {}
int getA() const { return a; }
void setA(int a) { this?>a = a; }
/* Insert Code Here */
};
struct add10 { void operator()(A & a) { a.setA(a.getA() + 10); } };
int main() {
int t[] = { 10, 5, 9, 6, 2, 4, 7, 8, 3, 1 };
vector<A> v1(t, t + 10);
for_each(v1.begin(), v1.end(), add10());
vector<A>::iterator it = find(v1.begin(), v1.end(), A(7));
cout << it?>getA() << endl;
return 0;
}
```

A.it will compile and print 7

B.it will not compile

C.it will compile but the program result is unpredictable

D.adding code:

```
bool operator !=(const A & b) const {
if (this?>a != b.a) { return true; } return false; }
```

at Place 1 will allow the program to compile

Answer: B

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

```
#include <iostream>
#include <algorithm>
#include <vector>
using namespace std;
void myfunction(int i) {
cout << " " << i;
}
void multiply (int a) {
a*2;
}
int main() {
int t[] = { 10, 5, 9, 6, 2, 4, 7, 8, 3, 1 };
vector<int> v1(t, t+10);
for_each(v1.begin(), v1.end(), multiply);
iter_swap(v1.begin(),t+9);
for_each(v1.begin(), v1.end(), myfunction);
return 0;
}
```

Program outputs:

A.1 5 9 6 2 4 7 8 3 1

B.compilation error

C.1 2 3 4 5 6 7 8 9 10

D.10 9 8 7 6 5 4 3 2 1

E.10 5 9 6 2 4 7 8 3 1

Answer: A

11.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 t[]={3,2,4,1,5,10,9,7,8,6};
vector<int> v1(t,t+10);
cout<<*max_element(v1.begin(), v1.end());
return 0;
}
```

Program outputs:

A.3

B.1

C.6
D.10
E.compilation error
Answer: D

12.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

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

```
#include <iostream>
#include <algorithm>
#include <vector>
#include <deque>
#include <set>
using namespace std;
void myfunction(int i) {
cout << " " << i;
}
int main() {
int t[] = { 10, 5, 9, 6, 2, 4, 7, 8, 3, 1 };
```

```
vector<int> v1(t, t + 10);
deque<int> d1(t, t + 10);
set<int> s1(t, t + 10);
for_each(v1.begin(), v1.end(), myfunction); // Line I
for_each(d1.begin(), d1.end(), myfunction); // Line II
for_each(s1.begin(), s1.end(), myfunction); // Line III
return 0;
}
```

A.program outputs: 10 5 9 6 2 4 7 8 3 1 10 5 9 6 2 4 7 8 3 1 1 2 3 4 5 6 7 8 9 10
B.program outputs: 10 5 9 6 2 4 7 8 3 1 10 5 9 6 2 4 7 8 3 1 10 5 9 6 2 4 7 8 3 1
C.program outputs: 1 2 3 4 5 6 7 8 9 10 1 2 3 4 5 6 7 8 9 10 1 2 3 4 5 6 7 8 9 10
D.compilation error in line I
E.compilation error in line III
Answer: A

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

```
#include <iostream>
#include <algorithm>
#include <map>
using namespace std;
int main() {
int t[] = { 10, 5, 9, 6, 2, 4, 7, 8, 3, 1 };
map<int, int> m;
for(int i=0; i < 10; i++) {
m[i]=t[i];
}
pair<const int,int> p(5,5);
map<int, int>::iterator it = find(m.begin(), m.end(), p);
if (it != m.end())
{
cout<<it?>first<<endl;
}
else
{
cout<<"Not found!\n";
}
return 0;
}
```

Program outputs:
A.5
B.Not found!
C.10
D.compilation error
Answer: B

15.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;
}
int main() {
int t[] = { 10, 5, 9, 6, 2, 4, 7, 8, 3, 1 };
set<int> s1(t, t+10);
vector<int> v1(s1.rbegin(), s1.rend());
swap_ranges(s1.begin(), s1.end(), v1.begin());
for_each(v1.begin(), v1.end(), myfunction);
for_each(s1.begin(), s1.end(), myfunction);
return 0;
}
```

Program outputs:

A.10 9 8 7 6 5 4 3 2 1 1 2 3 4 5 6 7 8 9 10

B.compilation error

C.1 2 3 4 5 6 7 8 9 10 1 2 3 4 5 6 7 8 9 10

D.1 2 3 4 5 6 7 8 9 10 10 9 8 7 6 5 4 3 2 1

E.10 9 8 7 6 5 4 3 2 1 10 9 8 7 6 5 4 3 2 1

Answer: B

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

```
#include <iostream>
#include <set>
#include <list>
using namespace std;
int main(){
int t[] ={ 1, 1, 2, 2, 3, 3, 4, 4, 5, 5 };
list<int>v(t, t+10);
set<int> s1(v.begin(),v.end());
if (s1.count(3) == 2) {
s1.erase(3);
}
for(set<int>::iterator i=s1.begin();i!= s1.end(); i++) {
cout<<*i<<" ";
}
return 0;
}
```

A.program outputs: 1 2 3 4 5
B.program outputs: 1 2 4 5
C.program outputs: 1 1 2 2 3 4 4 5 5
D.program outputs: 1 1 2 3 3 4 4 5 5
E.compilation error
Answer: A

17.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 Add(int a, int b) {
return a+b;
}
int main() {
int t[]={1,2,3,4,5,6,7,8,9,10};
vector<int> v1(t, t+10);
vector<int> v2(10);
transform(v1.begin(), v1.end(), v2.begin(), bind2nd(ptr_fun (Add),1));
vector<int>::iterator it = find_if(v2.begin(), v2.end(),bind2nd(equal_to<int>(),10));
cout<<*it<<endl;
return 0;
}
```

Program outputs:
A.false
B.true
C.10
D.0
E.compilation error
Answer: C

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

```
#include <iostream>
#include <algorithm>
#include <vector>
#include <deque>
using namespace std;
void myfunction(int i) {
```

```
cout << " " << i;
}
int main() {
int t[] = { 10, 5, 9, 6, 2, 4, 7, 8, 3, 1 };
deque<int> d1(t, t+10);
vector<int> v1(d1.rbegin(), d1.rend());
sort(d1.begin(), d1.end());
swap_ranges(v1.begin(), v1.end(), d1.begin());
for_each(v1.begin(), v1.end(), myfunction);
for_each(d1.begin(), d1.end(), myfunction);
return 0;
}
```

Program outputs:

A.10 9 8 7 6 5 4 3 2 1 1 2 3 4 5 6 7 8 9 10

B.compilation error

C.1 2 3 4 5 6 7 8 9 10 1 2 3 4 5 6 7 8 9 10

D.1 2 3 4 5 6 7 8 9 10 1 3 8 7 4 2 6 9 5 10

E.1 3 8 7 4 2 6 9 5 10 1 2 3 4 5 6 7 8 9 10

Answer: D

19.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_union(t1,t1+5,t2,t2+5,v1.begin());
for_each(v1.begin(), v1.end(), Out<int>(cout));cout<<endl;
return 0;
}
```

Program outputs:

A.3 2 4 1 5 6 8 2 1 0

B.1 2 3 4 5 6 8 2 1 0

C.1 1 2 2 3 4 5 5 6 8

D.1 2 3 4 5 6 8 0 0 0

E.compilation error
Answer: D

20.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 t[]={3,2,4,1,5,10,9,7,8,6};
vector<int> v1(t,t+10);
sort(v1.begin(), v1.end(), greater<int>());
cout<<min_element(v1.begin(), v1.end());
return 0;
}
```

Program outputs:
A.3
B.1
C.6
D.10
E.compilation error
Answer: E