

CPP.exam

Number: CPP
Passing Score: 800
Time Limit: 120 min
File Version: 4.0



C++
CPP

C++ Certified Professional Programmer

Version 4.0

Sections

1. Volume A
2. Volume B

Exam A

QUESTION 1

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

```
#include <iostream>
#include <algorithm>
#include <set>
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; }
    operator int() const {return a;}
};

int main () {
    int t[] = {1,2,3,2,3,5,1,2,7,3,2,1,10, 4,4,5};
    set<A> s (t,t+15);
    cout<<equal(s.begin(), s.end(), t)<<endl;

    return 0;
}
```

Program outputs:

- A. true
- B. false
- C. 1
- D. 0
- E. compilation error

Correct Answer: D

Section: Volume A

Explanation

Explanation/Reference:

QUESTION 2

Which method added to class B at the marked spot will allow the code below to compile? Choose all possible solutions.

```
#include <vector>
#include <iostream>
#include <algorithm>
using namespace std;
class B { int val;
public:
    B(int v):val(v){}
    int getV() const {return val;}
    /* Insert Code Here */
};
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() {
    int t[]={8, 10, 5, 1, 4, 6, 2, 7, 9, 3};
    vector<B> v1(t, t+10);
    sort(v1.begin(), v1.end(), greater<B>());
    for_each(v1.begin(), v1.end(), Out<B>(cout));cout<<endl;
    return 0;
}
```



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- A. bool operator < (const B & v) const { return val<v.val;}
- B. bool operator > (const B & v) const { return val<v.val;}
- C. bool operator > (const B & v) const { return val>v.val;}
- D. bool operator == (const B & v) const { return val==v.val;}
- E. operator int () const { return val; }

Correct Answer: BCD

Section: Volume A

Explanation

Explanation/Reference:

QUESTION 3

What happens 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, 1, 2, 3, 4, 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()));
    }
    for(multimap<int, string>::iterator i=m.begin();i!= m.end(); i++) {
        cout<<*i<<" ";
    }
    return 0;
}
```

- A. program outputs: 3 4 2 1 0 1 2 3 4 0
- B. program outputs: 00 11 22 33 44
- C. program outputs: 0 0 1 1 2 2 3 3 4 4
- D. program outputs: 0 0 0 1 1 1 2 2 2 3 3 3 4 4 4
- E. compilation error

Correct Answer: E

Section: Volume A

Explanation

Explanation/Reference:

QUESTION 4

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

```

#include <iostream>
#include <algorithm>
#include <deque>
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; }
};
int main () {
    int t[] = {1,2,3,2,3,5,1,2,7,3,2,1,10, 4,4,5};
    deque<int> d (t,t+15);
    int number = count(d.begin(), d.end(), 2);
    cout<< number<<endl;
    return 0;
}

```

Program outputs:

- A. 4
- B. 3
- C. 2
- D. 0
- E. compilation error

Correct Answer: A
Section: Volume A
Explanation

Explanation/Reference:

QUESTION 5

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

```

#include <vector>
#include <iostream>
int main ()
{

```

```

std::vector<int>v1;
for(int i = 10; i>0; i??)
{
v1.push_back(i);
}
std::vector<int>::iterator it = v1.begin();
int sum = 0;
while(it != v1.end())
{
sum+=it++;
}
std::cout<<*v1.erase(v1.begin(),v1.end())?3)<<" "<<sum <<std::endl;

return 0;
}

```

- A. program outputs 3 55
- B. compilation error
- C. program outputs 3 45
- D. program outputs 7 55

Correct Answer: B
Section: Volume A
Explanation

Explanation/Reference:

QUESTION 6

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;

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);
cout<<find(v1.begin(), v1.end(), 6)<<" "<<find(d1.begin(), d1.end(), 6)<<" "<<find(s1.begin(), s1.end(), 6);
return 0;
}

```

- A. program outputs: 6 6 6
- B. program outputs: 3 3 5
- C. program outputs: 3 6 5
- D. compilation error
- E. none of these

Correct Answer: D
Section: Volume A
Explanation

Explanation/Reference:

QUESTION 7

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

```

#include <iostream>

using namespace std;

template <typename T>
class A {
    T _v;
public:
    A() {}
    A(T v): _v(v){}
    T getV() { return _v; }
    void add(T a) { _v+=a; }
    template <class U>
    U get(U a) {
        return (U)(_v);
    }
};

int main()

```

```

{
    A<int> a(1);
    a.add(10);
    cout.setf( ios::showpoint);
    cout << a.getV() << " " << a.get(1.0)<<endl;
    return 0;
}

```

- A. program will display: 11 11
- B. program will not compile
- C. program will display: 11.0000 11
- D. program will display: 11 11.000

Correct Answer: D

Section: Volume A

Explanation

Explanation/Reference:

QUESTION 8

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

```

#include <iostream>

using namespace std;

void g(int a)
{
    cout<<a?1<<endl;
}

template<class A>
void g(A a)
{
    cout<<a+1<<endl;
}

int main()
{

```



```
int a = 1;
g(a);
return 0;
}
```

- A. program displays: 0
- B. program displays: 2
- C. compilation error
- D. runtime exception

Correct Answer: A
Section: Volume A
Explanation

Explanation/Reference:

QUESTION 9

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

Program outputs:

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

Correct Answer: B

Section: Volume A

Explanation

Explanation/Reference:

QUESTION 10

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

```
#include <list>
#include <iostream>
#include <deque>
using namespace std;
template<class T> void print(T start, T end) {
    while (start != end) {
        std::cout << *start << " "; start++;
    }
}
class A {
    int a;
public:
    A(int a):a(a){}
    operator int () const { return a;}int getA() const { return a;}
};
struct R {
    int val;
    R(int v):val(v){}
    bool operator()(const A & a) { return a>val;} };
int main() {
    int t1[]={ 1, 2, 3, 4, 5, 6, 7, 8, 9, 10};
    list<A> l1(t1, t1 + 10);
    R r(4);l1.remove_if(r);
    print(l1.begin(), l1.end()); cout<<endl;
```

```
    return 0;  
}
```



- A. program outputs: 1 2 3 4
- B. program outputs: 5 6 7 8 9 10
- C. program outputs: 1 2 3 4 5
- D. program outputs: 6 7 8 9 10

Correct Answer: A
Section: Volume A
Explanation

Explanation/Reference:

QUESTION 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 t1[]={3,2,4,1,5};  
    int t2[]={6,10,8,7,9};  
    vector<int> 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<int>(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

Correct Answer: D

Section: Volume A

Explanation

Explanation/Reference:

QUESTION 12

What will happen when you attempt to compile and run the code below, assuming that you enter the following sequence: 1.1 2.2 3.3<enter>?

```

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

int main ()
{
    int a,b,c;
    cin>>a>>b>>c;
    cout<<a<<b<<c<<endl;
    return 0;
}

```

Program will output:

- A. 123
- B. 1 2 3
- C. 1.12.23.3
- D. 1.1 2.2 3.3

E. none of these

Correct Answer: E

Section: Volume A

Explanation

Explanation/Reference:

QUESTION 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;

struct display {
    void operator() (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(), display); //Line I

    for_each(d1.begin(), d1.end(), *(new display())); // Line II

    for_each(s1.begin(), s1.end(), display()); // 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. compilation error in line I
- D. compilation error in line II

E. compilation error in line III

Correct Answer: C

Section: Volume A

Explanation

Explanation/Reference:

QUESTION 14

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

```
#include <iostream>
#include <algorithm>
#include <vector>
#include <set>
using namespace std;

int main() {
    int t[] = {1,2,3,2,3,5,1,2,7,3,2,1,10, 4,4,5};
    vector<int> v1(t, t + 15);
    set<int> s1(t, t + 15);

    pair<set<int>::iterator, vector<int>::iterator > resultSet = mismatch(s1.begin(), s1.end(), v1.begin());
    cout<<*resultSet.first<<" "<<*resultSet.second<<endl;

    return 0;
}
```

Program outputs:

A. 2 4

B. 4 2

C. 0 5

D. compilation error

Correct Answer: B

Section: Volume A

Explanation

Explanation/Reference:

QUESTION 15

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 */
    for( ;i!= s1.end(); i++)
    {
        cout<<i?>getA()<<" ";
    }
    cout<<endl;
    return 0;
}
```

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

Correct Answer: ABD

Section: Volume A

Explanation

Explanation/Reference:

QUESTION 16

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

```
#include <deque>
#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[]={8, 10, 5, 1, 4, 6, 2, 7, 9, 3};
    deque<int> d1(t, t+10);
    deque<int>::iterator it = lower_bound(d1.begin(), d1.end(), 4);
    for_each(it, d1.end(), Out<int>(cout));cout<<endl;
    return 0;
}
```

Program outputs:

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

Correct Answer: A

Section: Volume A

Explanation

Explanation/Reference:

QUESTION 17

What happens when you attempt to compile and run the following code? Choose all that apply.

```
#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() ; ) {
        int 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. no file will be created nor opened

E. program will display sequence 1 2 3 4 5 6 7 8 9 10

Correct Answer: ABCE

Section: Volume A

Explanation

Explanation/Reference:

QUESTION 18

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

Program outputs:

- A. 3
- B. 1
- C. 6
- D. 10
- E. compilation error

Correct Answer: E
Section: Volume A
Explanation

Explanation/Reference:

QUESTION 19

What will happen when you attempt to compile and run the code below, assuming that you enter the following sequence: 64 100<enter>?

```
#include <iostream>
#include <string>
#include <sstream>
#include <iomanip>

using namespace std;

int main ()
{
    string s;
    getline(cin, s);
    stringstream input(s);
    stringstream output;

    for( ; !input.fail() ; )
    {
        int i;
        input>>hex>>i;
        output<<setw(4)<<i;
    }
    cout<<output.str();
    return 0;
}
```

What will be the result assuming that user will enter following sequence: 64 100:

- A. 64 100
- B. 100 256
- C. 100 256 256
- D. 0x64 0x100

E. 0x100 0x256 0x256

Correct Answer: C

Section: Volume A

Explanation

Explanation/Reference:

QUESTION 20

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));
    for_each(v2.rbegin(), v2.rend(), Out<int>(cout));cout<<endl;
    return 0;
}
```

Program outputs:

- A. 1 2 3 4 5 6 7 8 9 10
- B. 2 3 4 5 6 7 8 9 10 11
- C. 10 9 8 7 6 5 4 3 2 1
- D. 11 10 9 8 7 6 5 4 3 2

E. compilation error

Correct Answer: D

Section: Volume A

Explanation

Explanation/Reference:

QUESTION 21

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

```
#include <vector>
#include <set>
#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_n(v1.begin(), 10, Sequence(1));
    random_shuffle(v1.rbegin(), v1.rend());
    sort(v1.begin(), v1.end(), great<int>());
    for_each(v1.begin(), v1.end(), Out<int>(cout));cout<<endl;
    return 0;
}
```

Program outputs:

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

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

C. compilation error

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

Correct Answer: C
Section: Volume A
Explanation

Explanation/Reference:

QUESTION 22

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

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

void myfunction(pair<int, int> i) {
    cout << " " << i.first;
}

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];
    }

    for_each(m.begin(), m.end(), myfunction);
    return 0;
}
```

Program outputs:

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



- B. 0 1 2 3 4 5 6 7 8 9
- C. 9 8 7 6 5 4 3 2 1 0
- D. 1 3 8 7 4 2 6 9 5 10
- E. compilation error

Correct Answer: B
Section: Volume A
Explanation

Explanation/Reference:

QUESTION 23

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

```
#include <iostream>
using namespace std;
int main()
{
    cout<<true<<" "<<boolalpha<<false;
    return 0;
}
```

Program outputs:

- A. true false
- B. 1 0
- C. 1 false
- D. true 0
- E. compilation error

Correct Answer: C
Section: Volume A
Explanation

Explanation/Reference:

QUESTION 24

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

```

Program outputs:

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

Correct Answer: B

Section: Volume A

Explanation

Explanation/Reference:

QUESTION 25

Which sentence is correct about the code below? Choose all that apply.

```

#include <iostream>
#include <algorithm>

```



```

#include <vector>
using namespace std;
class F {
    int val;
public:
    F(int v):val(v){}
    bool operator() (int v) {
        if (v == val) return true;
        return false;
    }
};

int main() {
    int t[] = { 10, 5, 9, 6, 2, 4, 7, 8, 3, 1 };
    vector<int> v1(t, t + 10);
    if (find(v1.begin(), v1.end(), 6) == find(v1.begin(), v1.end(), F(6))) {
        cout<<"Found!\n";
    } else {
        cout<<"Not found!\n";
    }
    return 0;
}

```

- A. it will compile successfully
- B. it will display Found!
- C. it will display Not found!
- D. it will not compile successfully

Correct Answer: D

Section: Volume A

Explanation

Explanation/Reference:

QUESTION 26

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

```

#include <deque>
#include <vector>
#include <iostream>

```

```

using namespace std;
int main ()
{
    vector<int>v1;
    deque<int>d1;
    for(int i=0; i<5; i++)
    {
        v1.push_back(i);v1.push_front(i);
        d1.push_back(i);d1.push_front(i);
    }
    for(int i=0; i<d1.size(); i++)
    {
        cout<<d1[i]<<" "<<v1[i]<<" ";
    }
    cout<<endl;
    return 0;
}

```

What will be its output:

- A. 4 4 3 3 2 2 1 1 0 0 0 0 1 1 2 2 3 3 4 4
- B. runtime exception
- C. compilation error due to line 11
- D. compilation error due to line 12

Correct Answer: C
Section: Volume A
Explanation

Explanation/Reference:

QUESTION 27

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

```

#include <iostream>
#include <algorithm>
#include <deque>
#include <vector>
using namespace std;
bool identical(int a, int b) {

```

```

    return b == 2*a?true:false;
}
int main() {
    int t[] = {1,2,3,2,3,5,1,2,7,3,2,1,10, 4,4,5};
    int u[] = {2,4,6,4,6,10,2,4,14,6,4,2,20,8,8,5};
    vector<int> v1(t, t + 15);
    deque<int> d1(u, u + 15);

    pair<deque<int>::iterator, vector<int>::iterator > result;
    result = mismatch(d1.begin(), d1.end(), v1.begin(), identical); //Line I
    if (result.first == d1.end() && result.second == v1.end()) { //Line II
        cout<<"Identical\n";
    } else {
        cout<<"Not identical\n";
    }
    return 0;
}

```

Program outputs:

- A. Identical
- B. Not identical
- C. compilation error at line marked I
- D. compilation error at line marked II

Correct Answer: B
Section: Volume A
Explanation

Explanation/Reference:

QUESTION 28

What will happen when you attempt to compile and run the code below, assuming that you enter the following sequence: true false<enter>?

```

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

int main ()
{

```

```

bool a,b;
cin>>boolalpha>>a>>b;
cout<<a<<b<<endl;
return 0;
}

```

Program will output:

- A. truefalse
- B. true0;
- C. 1false
- D. 10
- E. none of these

Correct Answer: D

Section: Volume A

Explanation

Explanation/Reference:

QUESTION 29

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

```

```

    for_each(v1.begin(), v1.end(), Out<B>(cout));cout<<endl;
    return 0;
}

```

Program outputs:

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

Correct Answer: C
Section: Volume A
Explanation

Explanation/Reference:

QUESTION 30

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

```

#include <iostream>

using namespace std;

template <class T>
class A {
    T _v;
public:
    A() {}
    A(T v): _v(v){}
    friend ostream & operator<<(ostream & c, const A<T> & v);
};

template <class T>
ostream & operator<<(ostream & c, const A<T> & v) {
    c<<v._v;return c; }

int main()
{
    A<int>a(10);
}

```

```

    cout<<a<<endl;
    return 0;
}

```

- A. program will display:10
- B. program will not compile
- C. program will compile
- D. program will run without output

Correct Answer: B

Section: Volume A

Explanation

Explanation/Reference:

QUESTION 31

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

```

#include <vector>
#include <iostream>
#include <algorithm>
#include <functional>
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<<val<<" "; } };

int main() {
    B t[]={3,2,4,1,5,6,10,8,7,9};
    vector<B> v1(t, t+10);
    for_each(v1.begin(), v1.end(), bind1st(plus<B>(), 1));
    for_each(v1.rbegin(), v1.rend(), Out<B>(cout));cout<<endl;
    return 0;
}

```

```
}
```

Program outputs:

- A. 3 2 4 1 5 6 10 8 7 9
- B. 4 3 5 2 6 7 11 9 8 10
- C. 9 7 8 10 6 5 1 4 2 3
- D. 10 8 9 11 7 6 2 5 3 4
- E. compilation error

Correct Answer: C

Section: Volume A

Explanation

Explanation/Reference:

QUESTION 32

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

```
#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; }
    bool operator==(A & b) { return a == b.a; }
};
struct Compare{
    bool operator()(const A & a, const A & b) {return a.getA()==b.getA();}
};
int main () {
    int t[] = {1,2,3,4,5,1,2,3,4,5};
    vector<A> v (t,t+10);
    vector<A>::iterator it;
    A m1[] = {A(1), A(2), A(3)};
    it = search (v.begin(), v.end(), m1, m1+3, Compare());
    cout << "First found at position: " << it-v.begin() << endl;
```

```
    return 0;
}
```

Program outputs:

- A. First found at position: 5
- B. First found at position: 0
- C. First found at position: 7
- D. compilation error
- E. First found at position: 10

Correct Answer: B

Section: Volume A

Explanation

Explanation/Reference:

QUESTION 33

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

```
#include <deque>
#include <iostream>
#include <algorithm>
using namespace std;
class B { int val;
public:
    B(int v):val(v){} B(){}
    int getV() const {return 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() {
    int t[]={8, 10, 5, 1, 4, 6, 2, 7, 9, 3};
    deque<B> d1(t, t+10);
    deque<B>::iterator it = lower_bound(d1.begin(), d1.end(), 4);
    for_each(it, d1.end(), Out<B>(cout));cout<<endl;
    return 0;
}
```


Program outputs:

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

Correct Answer: D

Section: Volume A

Explanation

Explanation/Reference:

QUESTION 34

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

```
#include <deque>
#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() {
    int t[]={20, 30, 10, 20, 30, 10, 20, 30, 10, 20};
    deque<B> d1(t, t+10);
    sort(d1.begin(), d1.end());
    pair<deque<B> ::iterator, deque<B>::iterator > result = equal_range(d1.begin(), d1.end(), B(20));
    for_each(result.first, result.second, Out<B>(cout));cout<<endl;
    return 0;
}
```

Program outputs:

- A. 10 10 10 20 20 20 20 30 30 30
- B. 20 20 20 20
- C. 10 20 20 20 20
- D. 20 20 20 20 30
- E. 10 20 20 20 20 30

Correct Answer: B

Section: Volume A

Explanation

Explanation/Reference:

QUESTION 35

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

```
#include <iostream>
#include <deque>
#include <list>
#include <queue>
#include <vector>
using namespace std;

int main()
{
    int t[] = { 1, 2, 3, 4, 5, 6, 7, 8, 9, 10};
    deque<int> mydeck(t, t+10); list<int> mylist(t, t+10);
    queue<int> first;
    queue<int> second(mydeck);
    queue<int> third(second);
    queue<int, list<int> > fourth(mylist);
    mylist.clear(); third.clear();
    cout<<third.size()<< " "<<mydeck.size()<< endl;
    cout<<fourth.size()<< " "<<mylist.size()<<endl;
    return 0;
}
```

- A. program outputs: 10 0
10 0
- B. program outputs: 0 0
0 0
- C. program outputs: 10 10
10 10
- D. program outputs: 10 0
0 10
- E. compilation error

Correct Answer: E
Section: Volume A
Explanation

Explanation/Reference:

QUESTION 36

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

```
#include <iostream>
#include <deque>
#include <list>
#include <queue>
#include <vector>
using namespace std;
class compare {
    bool reverse;
public:
    compare(bool revparam = false){ reverse = revparam;}
    bool operator()(int lhs, int rhs) const{
        if (reverse)return (lhs > rhs);
        elsereturn (lhs < rhs);
    }
};
```

```

    }
};
int main(){
    int myints[] = { 3, 4, 2, 1, 6, 5, 7, 9, 8, 0 };
    priority_queue<int, deque<int> > first(myints, myints + 10);
    priority_queue<int, vector<int>, compare> second(myints, myints + 10,
    compare(false));
    while (first.size() > 0){
        cout << first.top() << " "; first.pop();
    }
    while (second.size() > 0) {
        cout << second.top() << " ";second.pop();
    }
    return 0;
}

```

- A. compilation error
- B. program outputs: 9 8 7 6 5 4 3 2 1 0 9 8 7 6 5 4 3 2 1 0
- C. program outputs: 9 8 7 6 5 4 3 2 1 0 0 1 2 3 4 5 6 7 8 9
- D. program outputs: 3 4 2 1 6 5 7 9 8 0 3 4 2 1 6 5 7 9 8 0

Correct Answer: B
Section: Volume A
Explanation

Explanation/Reference:

QUESTION 37

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

```

#include <deque>
#include <iostream>
#include <algorithm>
#include <set>
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[]={8, 10, 5, 1, 4, 6, 2, 7, 9, 3};
deque<int> d1(t, t+10);
set<int> s1(t,t+10);
cout<<binary_search(s1.begin(),s1.end(), 4)<<" "<<binary_search(d1.begin(),d1.end(), 4)<<endl;
return 0;
}

```

Choose all possible outputs (all that apply):

- A. 1 0
- B. 1 1
- C. true true
- D. false false
- E. compilation error

Correct Answer: AB

Section: Volume A

Explanation

Explanation/Reference:

QUESTION 38

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 Add {
    int operator()(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(Add(),1));
for_each(v2.rbegin(), v2.rend(), Out<int>(cout));cout<<endl;
return 0;
}

```

Program outputs:

- A. 1 2 3 4 5 6 7 8 9 10
- B. 2 3 4 5 6 7 8 9 10 11
- C. 10 9 8 7 6 5 4 3 2 1
- D. 11 10 9 8 7 6 5 4 3 2
- E. compilation error

Correct Answer: E
Section: Volume A
Explanation

Explanation/Reference:

QUESTION 39

What will happen when you attempt to compile and run the code below, assuming you enter the following sequence: 1 2 3<enter>?

```

#include <iostream>

using namespace std;

int main ()
{
    int a,b,c;
    cin>>a>>b>>c;
    cout<<a<<b<<c<<endl;
    return 0;
}

```

Program will output:

- A. 123
- B. 1 2 3

- C. 321
- D. compilation error
- E. the result is unspecified

Correct Answer: A
Section: Volume A
Explanation

Explanation/Reference:

QUESTION 40

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

```
#include <iostream>
#include <map>
#include <vector>
#include <string>
using namespace std;
int main(){
    int second[] = { 3, 4, 2, 1, 6, 5, 7, 9, 8, 0 };
    string first[] = {"three", "four", "two", "one", "six", "five", "seven", "nine", "eight", "zero"};
    map<int, string> m;
    for(int i=0; i<10; i++) {
        m.insert(pair<int, string>(second[i], first[i]));
    }
    m[0]="ten";
    m.insert(pair<int, string>(1, "eleven"));
    for(map<int, string>::iterator i=m.begin(); i!= m.end(); i++) {
        cout<<i?>second<<" ";
    }
    return 0;
}
```

- A. program outputs: zero one two three four five six seven eight nine
- B. program outputs: ten one two three four five six seven eight nine
- C. program outputs: zero eleven two three four five six seven eight nine
- D. program outputs: ten eleven two three four five six seven eight nine
- E. program outputs: 0 1 2 3 4 5 6 7 8 9

Correct Answer: B
Section: Volume A
Explanation

Explanation/Reference:

QUESTION 41

What will happen when you attempt to compile and run the code below, assuming that you enter the following sequence: 1 2 3<enter>?

```
#include <iostream>
#include <string>
#include <sstream>

using namespace std;
int main ()
{
    string s;
    getline(cin, s);
    stringstream input(s);
    stringstream output;

    for( ; !input.fail() ; )
    {
        int i;
        input>>i;
        output<<hex<<i<<" ";
    }
    cout<<output.str();
    return 0;
}
```

Program will output:

- A. 1 2 3
- B. 1 2 3 3
- C. 0x1 0x2 0x3
- D. 0x1 0x2 0x3 0x3
- E. program runs forever without output

Correct Answer: B

Section: Volume A**Explanation****Explanation/Reference:****QUESTION 42**

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

```
#include <iostream>
#include <algorithm>
#include <vector>
using namespace std;
struct Compare {
    bool operator()(int a) {
        if (a > 5) return true;
        return false;
    }
};
int main () {
    int t[] = {1,2,3,2,3,5,1,2,7,3,2,1,10, 4,4,5};
    vector<int> v (t,t+15);

    int number = count(v.begin(), v.end(), Compare());
    cout<< number<<endl;
    return 0;
}
```

Program outputs:

- A. 4
- B. 3
- C. 2
- D. 0
- E. compilation error

Correct Answer: E

Section: Volume A**Explanation****Explanation/Reference:**

QUESTION 43

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

```
#include <deque>
#include <set>
#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() {
    int t[]={8, 10, 5, 1, 4, 6, 2, 7, 9, 3};
    deque<B> d1(t, t+10);
    sort(d1.begin(), d1.end());
    set<B> s1(t,t+10);
    cout<<binary_search(s1.begin(),s1.end(), 4)<<" "<<binary_search(d1.begin(),d1.end(), 4)<<endl;
    return 0;
}
```

Program outputs:

- A. 1 0
- B. 1 1
- C. true true
- D. false false
- E. compilation error

Correct Answer: E

Section: Volume A

Explanation

Explanation/Reference:

QUESTION 44

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

```
#include <vector>
#include <iostream>
using namespace std;
class A
{
    int a,b;
public:
    A(const A & c) { a = c.a; }
    A():a(0),b(0){}
    void setA(int a) {this->a = a;} void setB(int b) {this->b = b;}
    int getA() {return a;} int getB() {return b;}
};

int main ()
{
    vector<A> v;
    A a;
    a.setA(10); a.setB(11);
    v.push_back(a);
    cout<<v[0].getB()<<" "<<v[0].getA()<<endl;
    return 0;
}
```

- A. program outputs 10 11
- B. the result is unpredictable
- C. program outputs 10 0
- D. program outputs 11 0
- E. compilation error

Correct Answer: B

Section: Volume B

Explanation

Explanation/Reference:

QUESTION 45

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=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<<val<<" "; } };

struct Add {
    B operator()(B & a, B & b) { return a+b; } };
int main() {
    int t[]={1,2,3,4,5,6,7,8,9,10};
    vector<B> v1(t, t+10);
    vector<B> v2(10);
    transform(v1.begin(), v1.end(), v2.begin(), bind1st(Add(),1));
    for_each(v2.rbegin(), v2.rend(), Out<B>(cout));cout<<endl;
    return 0;
}
```

Program outputs:

- A. 1 2 3 4 5 6 7 8 9 10
- B. 2 3 4 5 6 7 8 9 10 11
- C. 10 9 8 7 6 5 4 3 2 1
- D. 11 10 9 8 7 6 5 4 3 2
- E. compilation error

Correct Answer: E

Section: Volume B

Explanation

Explanation/Reference:

QUESTION 46

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

Program outputs:

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

Correct Answer: E

Section: Volume B

Explanation

Explanation/Reference:

QUESTION 47

What will happen when you attempt to compile and run the code below, assuming that file test.out do not exist before the program execution?

```
#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 (){
    int t[] = {1, 2, 3, 4, 5, 6, 7, 8, 9, 10};
    fstream f("test.out");
    list<int> l(t, t+10);
    for_each(l.begin(), l.end(), Out<int>(f));
    f.close();
    return 0;
}
```

- A. file test.out will be created and opened for writing
- B. file test.out will be created and opened for reading
- C. no file will be created nor opened
- D. file test.out will contain sequence 1 2 3 4 5 6 7 8 9 10
- E. compilation error

Correct Answer: C

Section: Volume B

Explanation

Explanation/Reference:

QUESTION 48

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

```
#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; }
    bool operator==(const A & b) const { return a == b.a; }
};
bool compare(const A & a, const A & b) { return a == b; }
int main () {
    int t[] = {1,2,3,3,5,1,2,4,4,5};
    vector<A> v (t,t+10);
    vector<A>::iterator it = v.begin();

    while ( (it = adjacent_find (it, v.end(), compare)) != v.end()) {
        cout<<it?v.begin()<<" ";it++;
    }
    cout<< endl;
    return 0;
}

```



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- A. program outputs: 2 3
- B. program outputs: 2 7
- C. program outputs: 3 8
- D. compilation error
- E. program will run forever

Correct Answer: B
Section: Volume B
Explanation

Explanation/Reference:

QUESTION 49

Which lines of the code below contain proper instantiation of queue objects?

```
#include <iostream>
#include <deque>
#include <list>
#include <queue>
#include <vector>
using namespace std;

int main()
{
    deque<int> mydeck;
    list<int> mylist;
    vector<int> myvector;
    queue<int> first; // line I
    queue<int> second(mydeck); // line II
    queue<int> third(second); // line III
    queue<int> fourth(mylist); // line IV
    queue<int> fifth(myvector); // line V
    return 0;
}
```

- A. line I
- B. line II
- C. line III
- D. line IV
- E. line V

Correct Answer: ABC

Section: Volume B

Explanation

Explanation/Reference:

QUESTION 50

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


```

#include <vector>
#include <iostream>
#include <algorithm>

using namespace std;

void print(int v) {
    cout<<v<<" ";
}

struct Sequence {
    int start;
    Sequence(int start):start(start){}
    int operator()() {
        return start++;
    }
};

int main() {
    vector<int> v1(10);
    generate_n(v1.begin(), 10, Sequence(1));
    for_each(v1.begin(), v1.end(), print);
    cout<<endl;
    return 0;
}

```

Program outputs:

- A. 1 2 3 4 5 6 7 8 9 10
- B. 0 0 0 0 0 0 0 0 0 0
- C. compilation error
- D. no output

Correct Answer: A
Section: Volume B
Explanation

Explanation/Reference:

QUESTION 51

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

```

#include <iostream>
using namespace std;

class C {
public:
    int _c;
    C():_c(0){}
    C(int c) { _c = c;}
    C operator+=(C & b) {
        C tmp;
        tmp._c = _c+b._c;
        return tmp;
    }
};

template <class T>
class A {
    T _v;
public:
    A() {}
    A(T v): _v(v){}
    T getV() { return _v; }
    void add(T & a) { _v+=a; }
};

int main()
{
    A<int> b(2);
    A<C> a (5);
    C c;
    a.add(c);
    cout << a.getV() <<endl;
    return 0;
}

```

- A. program will display:2
- B. program will not compile
- C. program will compile
- D. program will cause runtime exception

Correct Answer: B
Section: Volume B
Explanation

Explanation/Reference:

QUESTION 52

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

```
#include <vector>
#include <iostream>
int main ()
{
    std::vector<int>v1;
    for(int i = 0; i<10; i++) {v1.push_back(i); }
    v1.resize(4);
    std::vector<int>::iterator it = v1.end();
    v1.insert(v1.end(),1, 4);
    for(int i=0 ; i<= v1.size(); i++) {std::cout<<v1.at(i)+v1[i]<<" "; }std::cout<<std::endl;
    return 0;
}
```

- A. compilation error
- B. program outputs 0 1 2 3 4
- C. program outputs 0 2 4 8 6 and exception
- D. program outputs 0 2 4 6 8
- E. program outputs 0 2 4 8 6

Correct Answer: C
Section: Volume B
Explanation

Explanation/Reference:

QUESTION 53

Which keywords can be used to define template type parameters? Choose all possible answers:

- A. class

- B. typedef
- C. typename
- D. static
- E. volatile

Correct Answer: AC

Section: Volume B

Explanation

Explanation/Reference:

QUESTION 54

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

```
#include <iostream>
#include <iomanip>

using namespace std;

int main ()
{
    float f = 10.126;
    cout.unsetf(ios::floatfield);
    cout<<scientific<<f<<" "<<setprecision(3)<<f<<endl;
    return 0;
}
```

What will be a mantissa part of the numbers displayed:

- A. 1.0126 1.013
- B. 1.012600 10.013
- C. 10.01260 10.013
- D. 1.012600 1.013
- E. 1.0126 1.01

Correct Answer: D

Section: Volume B

Explanation

Explanation/Reference:

QUESTION 55

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

```
#include <iostream>
#include <algorithm>
#include <vector>
using namespace std;
bool compare(int a, int b) { return a == b; }
int main () {
    int t[] = {1,2,3,4,5,1,2,3,4,5};
    vector<int> v (t,t+10);
    vector<int>::iterator it = v.begin();
    int m1[] = {1, 2, 3};

    while ( (it = find_first_of (it, v.end(), m1, m1+3)) != v.end()) {
        cout<<it?v.begin()<<" ";
    }
    cout<< endl;
    return 0;
}
```

- A. program outputs: 0 1 2 5 6 7
- B. program outputs: 0 5
- C. program outputs: 0 0
- D. compilation error
- E. program will run forever

Correct Answer: E

Section: Volume B

Explanation

Explanation/Reference:

QUESTION 56

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

```
#include <vector>
```

```

#include <iostream>
#include <algorithm>
#include <functional>
using namespace std;
class B { int val;
public:
    B(int v=0):val(v){}
    int getV() const {return val;}
    B operator +(const B &b )const { return B(val + b.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<<" "; } };
B Add(B a, B b) { return a+b; }
int main() {
    int t[]={1,2,3,4,5,6,7,8,9,10};
    vector<B> v1(t, t+10);
    vector<B> v2(10);
    transform(v1.begin(), v1.end(), v2.begin(), bind2nd(ptr_fun(Add),1));
    for_each(v2.rbegin(), v2.rend(), Out<B>(cout));cout<<endl;
    return 0;
}

```

Program outputs:

- A. 1 2 3 4 5 6 7 8 9 10
- B. 2 3 4 5 6 7 8 9 10 11
- C. 10 9 8 7 6 5 4 3 2 1
- D. 11 10 9 8 7 6 5 4 3 2
- E. compilation error

Correct Answer: D
Section: Volume B
Explanation

Explanation/Reference:

QUESTION 57

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

```

#include <vector>
#include <iostream>
using namespace std;
class A
{
    int a,b;
public:
    A & operator =(const A & c) { a = c.a; return *this;}
    A():a(0),b(0){}
    void setA(int a) {this->a = a;} void setB(int b) {this->b = b;}
    int getA() {return a;} int getB() {return b;}
};

int main ()
{
    vector<A> v;
    A a;
    a.setA(10); a.setB(11);
    v.push_back(a);
    A b = v.front(); v.pop_back();
    cout<<b.getB()<<" "<<b.getA()<<endl;
    return 0;
}

```

- A. program outputs 11 10
- B. compilation error
- C. program outputs 0 10
- D. program outputs 10 0
- E. program outputs 11 0

Correct Answer: A
Section: Volume B
Explanation

Explanation/Reference:

QUESTION 58

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

```
#include <iostream>
#include <iomanip>

using namespace std;

int main ()
{
    float f = 10.126;
    cout<<f<<" "<<setprecision(2)<<f<<endl;
    return 0;
}
```

Program outputs:

- A. 10.126 10
- B. 10.126 10.12
- C. compilation error
- D. 10.126 10.13

Correct Answer: A
Section: Volume B
Explanation

Explanation/Reference:

QUESTION 59

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

```
#include <iostream>

using namespace std;

template<int>
void g(int a)
{
    cout<<a?1<<endl;
}

template<class A>
void g(A a)
```



```

{
    cout<<a+1<<endl;
}

int main()
{
    int a = 1;
    g(a);
    return 0;
}

```

- A. program displays: 1
- B. program displays: 2
- C. compilation error
- D. runtime exception

Correct Answer: B
Section: Volume B
Explanation

Explanation/Reference:

QUESTION 60

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

```

#include <iostream>
#include <string>

using namespace std;

template <class T>
class A {
    T _v;
public:
    A() {}
    A(T v): _v(v){}
    T getV() { return _v; }
    void add(T & a) { _v+=a; }
};

```

```
int main()
{
    A<string> a("Hello");
    string s(" world!");
    a.add(s);
    cout << a.getV() <<endl;
    return 0;
}
```



- A. program will display: Hello world!
- B. program will not compile
- C. program will display: Hello
- D. program will run without any output

Correct Answer: A
Section: Volume B
Explanation

Explanation/Reference:

QUESTION 61

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;
}
```

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

Program outputs:

- A. 10 5 9 6 2 4 7 8 3 1
- B. 1 3 8 7 4 2 6 9 5 10 10 5 9 6 2 4 7 8 3 1
- C. 1 3 8 7 4 2 6 9 5 10
- D. runtime exception/segmentation fault
- E. compilation error

Correct Answer: C

Section: Volume B

Explanation

Explanation/Reference:

QUESTION 62

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(10,0);
sort(t1, t1+5); sort(t2, t2+5);
copy(t1,t1+5,v1.begin());
copy(t2,t2+5,v1.begin()+5);
inplace_merge(v1.begin(), v1.begin()+5,v1.end());
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

Correct Answer: D

Section: Volume B

Explanation

Explanation/Reference:

QUESTION 63

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

```

#include <iostream>
#include <set>
#include <vector>
using namespace std;
int main(){
    int myints[] = { 3, 4, 2, 1, 6, 5, 7, 9, 8, 0 };
    set<int> s(myints, myints+10);
    multiset<int> s1(s.begin(),s.end());
    s1.insert(s.begin(),s.end());
    s1.erase(s1.lower_bound(2),s1.upper_bound(7));
    for(multiset<int>::iterator i=s1.begin();i!= s1.end(); i++) {
        cout<<*i<<" ";
    }
}

```

```
    return 0;
}
```

The output will be:

- A. 0 0 1 1 8 8 9 9
- B. 0 1 8 9
- C. 2 3 4 5 6 7
- D. 3 4 9 8 0
- E. 3 3 4 4 9 9 8 8 0 0

Correct Answer: A
Section: Volume B
Explanation

Explanation/Reference:

QUESTION 64

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

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

    deque<int>d1(t, t+10);
    vector<int>v1(t, t+10);
    cout<<v1.size()<<" "<<v1.capacity()<<" ";
    cout<<d1.size()<<" "<<d1.capacity()<<" ";
    d1.resize(12); v1.resize(12);
    cout<<v1.size()<<" "<<v1.capacity()<<" ";
    cout<<d1.size()<<" "<<d1.capacity()<<" ";
    d1.reserve(20);v1.reserve(20);
    cout<<v1.size()<<" "<<v1.capacity()<<" ";
    cout<<d1.size()<<" "<<d1.capacity()<<endl;
    return 0;
}
```

- A. the output is 10 10 10 10 12 12 12 12 20 20
- B. reserve and resize means exactly the same
- C. there are compilation errors
- D. capacity is always smaller then size

Correct Answer: C

Section: Volume B

Explanation

Explanation/Reference:

QUESTION 65

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

```
#include <iostream>
#include <deque>
#include <list>
#include <stack>
#include <vector>
using namespace std;
int main()
{
    deque<int> mydeck;list<int> mylist; vector<int> myvector;
    stack<int> first;
    stack<int> second(mydeck);
    stack<int> third(second);
    stack<int, list<int> > fourth(mylist);
    fourth.push(10);fourth.push(11);fourth.push(12);
    stack<int, vector<int> > fifth(myvector);
    fifth.push(10);fifth.push(11);fifth.push(12);
    while(!fifth.empty())
    {
        cout<<fifth.top()<<" ";
        fifth.pop();
    }
    while (!fourth.empty())
    {
        cout << fourth.front() << " ";
        fourth.pop();
    }
}
```

```

    }
    return 0;
}

```

- A. program outputs: 12 11 10 12 11 10
- B. compilation error
- C. program outputs: 10 11 12 10 11 12
- D. runtime exception

Correct Answer: B
Section: Volume B
Explanation

Explanation/Reference:

QUESTION 66

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=0):val(v){}
    int getV() const {return val;}
    operator int () const { return 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<<" "; } };
struct Add {
    B operator()(B & a, B & b) { return a+b; } };
int main() {
    B t[]={1,2,3,4,5,6,7,8,9,10};
    vector<B> v1(t, t+10);
    vector<B> v2(10);
    transform(v1.begin(), v1.end(), v2.begin(), bind2nd(Add(),1));
    for_each(v2.rbegin(), v2.rend(), Out<B>(cout));cout<<endl;
}

```

```
    return 0;
}
```

Program outputs:

- A. 1 2 3 4 5 6 7 8 9 10
- B. 2 3 4 5 6 7 8 9 10 11
- C. 10 9 8 7 6 5 4 3 2 1
- D. 11 10 9 8 7 6 5 4 3 2
- E. compilation error

Correct Answer: E
Section: Volume B
Explanation

Explanation/Reference:

QUESTION 67

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

```
#include <list>
#include <iostream>
using namespace std;
template<class T> void print(T start, T end) {
    while (start != end) {
        std::cout << *start << " "; start++;
    }
}
class A {
    int a;
public:
    A(int a):a(a){}
    operator int () const { return a;}int getA() const { return a;}
};
int main() {
    int t1[] = { 1, 2, 3, 4, 5, 6, 7, 8, 9, 10};
    list<A> l1(t1, t1 + 10);
    list<A> l2(l1);
    l2.reverse(); l1.splice(l1.end(),l2);
    l1.pop_back();l1.unique();
}
```



```

    print(l1.begin(), l1.end()); cout<<endl;
    return 0;
}

```

- A. compilation error
- B. runtime exception
- C. program outputs: 1 2 3 4 5 6 7 8 9 10 9 8 7 6 5 4 3 2
- D. program outputs: 1 2 3 4 5 6 7 8 9 10 10 9 8 7 6 5 4 3 2
- E. program outputs: 1 2 3 4 5 6 7 8 9 10 9 8 7 6 5 4 3 2 1

Correct Answer: C
Section: Volume B
Explanation

Explanation/Reference:

QUESTION 68

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.getline(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

Correct Answer: D
Section: Volume B
Explanation

Explanation/Reference:

QUESTION 69

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);
    multiset<int> s1(v.begin(),v.end());
    if (s1.count(3) == 2) {
        s1.erase(3);
    }
    for(multiset<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 2 3 3 4 4 5 5
- E. compilation error

Correct Answer: D
Section: Volume B
Explanation

Explanation/Reference:

QUESTION 70

Which are NOT valid instantiations of priority_queue object:

```
#include <iostream>
#include <deque>
#include <list>
#include <queue>
#include <vector>
using namespace std;

int main()
{
    deque<int> mydeck;list<int> mylist; vector<int> myvector;
    priority_queue<int> first;//line I
    priority_queue<int, deque<int> > second;//line II
    priority_queue<int> third(first);//line III
    priority_queue<int, list<int> > fourth(third);//line IV
    priority_queue<int, vector<int> > fifth(myvector.begin(), myvector.end());//line V
    return 0;
}
```

- A. line I
- B. line II
- C. line III
- D. line IV
- E. line V

Correct Answer: D

Section: Volume B

Explanation

Explanation/Reference:

QUESTION 71

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

```
#include <iostream>
#include <set>
#include <vector>
using namespace std;
int main(){
```

```

int myints[] = { 3, 4, 2, 1, 6, 5, 7, 9, 8, 0 };
vector<int> v(myints, myints+10);
set<int> s1(v.begin(), v.end());
s1.insert(v.begin(), v.end());
s1.erase(s1.lower_bound(2), s1.upper_bound(7));
for(set<int>::iterator i=s1.begin(); i!= s1.end(); i++) {
    cout<<*i<<" ";
}
return 0;
}

```

- A. program outputs: 0 1 8 9
- B. program outputs: 2 3 4 5 6 7
- C. program outputs: 1 6 5 7
- D. program outputs: 3 4 9 8 0

Correct Answer: A
Section: Volume B
Explanation

Explanation/Reference:

QUESTION 72

What will happen when you attempt to compile and run the code below, assuming that you enter the following sequence: 1 2 3 4 quit<enter>?

```

#include <iostream>
#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 ()
{
    list<string> l;

```

```

while(cin.good())
{
string s;
cin>>s;
if (s == "quit") break;
l.push_back(s);
}
for_each(l.begin(), l.end(), Out<string>(cout));
return 0;
}

```

Program will output:

- A. 1 2 3 4
- B. 1 2 3 4 quit
- C. 1
- D. program runs forever without output

Correct Answer: A

Section: Volume B

Explanation

Explanation/Reference:

QUESTION 73

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 multiply (int a) {
    return a*2;
}

```

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

Program outputs:

- A. 20 10 18 12 4 8 14 16 6 2
- B. 2 4 6 8 10 12 14 16 18 20
- C. 4 8 12 16 20 24 28 32 36 40
- D. compilation error

Correct Answer: D

Section: Volume B

Explanation

Explanation/Reference:

QUESTION 74

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 t[]={3,2,4,1,5,6,10,8,7,9};
    vector<int> v1(t, t+10);
    for_each(v1.begin(), v1.end(), bind1st(plus<int>(), 1));
```

```

    for_each(v1.rbegin(), v1.rend(), Out<int>(cout));cout<<endl;
    return 0;
}

```

Program outputs:



- A. 3 2 4 1 5 6 10 8 7 9
- B. 4 3 5 2 6 7 11 9 8 10
- C. 9 7 8 10 6 5 1 4 2 3
- D. 10 8 9 11 7 6 2 5 3 4
- E. compilation error

Correct Answer: C
Section: Volume B
Explanation

Explanation/Reference:

QUESTION 75

What will happen when you attempt to compile and run the following code? Choose all possible answers.

```

#include <iostream>

using namespace std;

class B {};

template <typename T>
class A {
    T _v;
public:
    A() {}
    A(T v): _v(v){}
}

```

```

    T getV() { return _v; }
    void add(T a) { _v+=a; }
};

int main()
{
    A<int> a(1);
    A<B> b;
    a.add(10);
    cout << a.getV() <<endl;
    return 0;
}

```

- A. program will display:11
- B. program will not compile
- C. program will compile
- D. program will cause runtime exception

Correct Answer: AC

Section: Volume B

Explanation

Explanation/Reference:

QUESTION 76

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

```

#include <deque>
#include <vector>
#include <iostream>
using namespace std;

class A
{
    int a;
public:
    A(int a) {this?>a = a; c++;}
    ~A() { c??;}
    static int c;
};

```



```

int A::c(0);
int main ()
{
    A t[] = {0, 1, 2, 3, 4, 5, 6, 7, 8, 9};
    vector<A>v1(t, t+10);
    deque<A>d1(v1.begin(), v1.end());
    deque<A> d2;
    d2 = d1;
    cout<<A::c<< endl;
    return 0;
}

```

How many objects of type A will be created:

- A. 10
- B. 20
- C. 30
- D. 40

Correct Answer: D

Section: Volume B

Explanation

Explanation/Reference:

QUESTION 77

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

```

#include <iostream>
using namespace std;
int main()
{
    cout.setf(ios::hex, ios::basefield);
    cout<<100.33<<" ";
    cout.setf(ios::showbase);
    cout<<100.33<<" ";
    return 0;
}

```

Program outputs:

- A. 64.21 64.21
- B. 64.21 0x64.21
- C. 0x64.21 0x64.21
- D. 100.33 100.33
- E. compilation error

Correct Answer: D
Section: Volume B
Explanation

Explanation/Reference:

QUESTION 78

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

```
#include <list>
#include <deque>
#include <iostream>
using namespace std;
template<class T>
void print(T start, T end) {
    while (start != end) {
        std::cout << *start << " "; start++;
    }
}
int main()
{
    int t1[] = { 1, 7, 8, 4, 5 };
    list<int> l1(t1, t1 + 5);
    int t2[] = { 3, 2, 6, 9, 0 };
    deque<int> d1(t2, t2 + 5);
    l1.sort();
    d1.sort();
    l1.merge(d1);
    print(l1.begin(), l1.end());
    print(d1.begin(), d2.end()); cout<<endl;
    return 0;
}
```

- A. program outputs: 0 1 2 3 4 5 6 7 8 9 0 2 3 6 9
- B. program outputs: 0 1 2 3 4 5 6 7 8 9
- C. program outputs: 9 8 7 6 5 4 3 2 1 0
- D. compilation error

Correct Answer: D
Section: Volume B
Explanation

Explanation/Reference:

QUESTION 79

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

```
#include <iostream>
using namespace std;
int main()
{
    cout.setf(ios::hex, ios::basefield);
    cout<<100<<" ";
    cout.unsetf(ios::hex);
    cout<<100<<" ";
    return 0;
}
```

Program outputs:

- A. 64 64
- B. 100 0x64
- C. 0x64 0x64
- D. 64 100
- E. compilation error

Correct Answer: D
Section: Volume B
Explanation

Explanation/Reference:

QUESTION 80

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;
class A {
    int a;
public:
    A(int a):a(a) {}
    int getA() const { return a;} void setA(int a){ this->a = a;}
    bool operator < ( const A & b) const { return a<b.a;}
};
struct display { void operator() (const A & a) {cout << " " << a.getA();} };
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);
    set<A> s1(t, t + 10);
    for_each(v1.begin(), v1.end(), add10()); for_each(v1.begin(), v1.end(), display());
    for_each(s1.begin(), s1.end(), add10()); for_each(s1.begin(), s1.end(), display());
    return 0;
}
```

- A. program outputs: 10 5 9 6 2 4 7 8 3 1 1 2 3 4 5 6 7 8 9 10
- B. program outputs: 20 15 19 16 12 14 17 18 13 11 1 2 3 4 5 6 7 8 9 10
- C. program outputs: 20 15 19 16 12 14 17 18 13 11 11 12 13 14 15 16 17 18 19 20
- D. compilation error

Correct Answer: D

Section: Volume B

Explanation

Explanation/Reference:

QUESTION 81

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

```
#include <vector>
#include <iostream>
#include <algorithm>
#include <functional>
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<<val<<" "; } };
struct Add : public binary_function<B, B, B> {
    B operator() (const B & a, const B & b) const {
        return a+b;    } };
int main() {
    B t[]={1,2,3,4,5,6,7,8,9,10};
    vector<B> v1(t, t+10);
    vector<B> v2(10);
    transform(v1.begin(), v1.end(), v2.begin(), bind1st(Add(), 1));
    for_each(v2.rbegin(), v2.rend(), Out<B>(cout));cout<<endl;
    return 0;
}
```

Program outputs:

- A. 1 2 3 4 5 6 7 8 9 10
- B. 2 3 4 5 6 7 8 9 10 11
- C. 10 9 8 7 6 5 4 3 2 1
- D. 11 10 9 8 7 6 5 4 3 2
- E. compilation error

Correct Answer: D

Section: Volume B
Explanation

Explanation/Reference:

QUESTION 82

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++; }
};
struct Odd {    bool operator()(int v) { return v%2==0; } };
int main() {
    vector<int> v1(10);
    generate(v1.begin(), v1.end(), Sequence(1));
    partition(v1.begin(),v1.end(), Odd());
    for_each(v1.begin(), v1.end(), Out<int>(cout) );cout<<endl;
    return 0;
}
```

Choose all possible outputs:

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

Correct Answer: CDE

Section: Volume B

Explanation

Explanation/Reference:

QUESTION 83

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

```
#include <vector>
#include <iostream>
#include <algorithm>
#include <functional>
using namespace std;
class B { int val;
public:
    B(int v=0):val(v){}
    int getV() const {return val;}
    B operator ?(const B &b )const { return B(val ? b.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[]={1,2,3,4,5,6,7,8,9,10};
    B t2[]={1,2,3,4,5,6,7,8,9,10};
    vector<B> v1(t1, t1+10);
    vector<B> v2(t2, t2+10);
    vector<B> v3(10);
    transform(v1.begin(), v1.end(), v2.rbegin(), v3.begin(), minus<B>());
    for_each(v3.rbegin(), v3.rend(), Out<B>(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

Correct Answer: A
Section: Volume B
Explanation

Explanation/Reference:

QUESTION 84

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;
}

struct sequence {
    int val,inc;
    sequence(int s, int i):val(s),inc(i){}
    int operator()(){
        int r = val; val += inc;
        return r;
    }
};

int main() {
    vector<int> v1(10);
    fill(v1.begin(), v1.end(), sequence(1,1));
    for_each(v1.begin(), v1.end(), myfunction);
    return 0;
}
```

Program outputs:

- A. 1 2 3 4 5 6 7 8 9 10
B. 10
C. 0 0 0 0 0 0 0 0 0 0

D. compilation error

Correct Answer: D

Section: Volume B

Explanation

Explanation/Reference:

QUESTION 85

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

```
#include <iostream>
#include <algorithm>
#include <set>
using namespace std;
struct Even {
    bool operator()(int a) {
        return (a % 2) == 0 ? true : false;
    }
};
int main () {
    int t[] = {1,2,3,2,3,5,1,2,7,3,2,1,10, 4,4,5};
    set<int> s(t,t+15);

    int number = count_if(s.begin(), s.end(), Even());
    cout<< number<<endl;
    return 0;
}
```

Program outputs:

A. 4

B. 3



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- C. 7
- D. 8
- E. compilation error

Correct Answer: B
Section: Volume B
Explanation

Explanation/Reference:

QUESTION 86

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

```
#include <vector>
#include <set>
#include <deque>
#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(5);
    generate(v1.begin(), v1.end(), Sequence(1));
    set<int> s1(v1.rbegin(), v1.rend());
    deque<int> d1(s1.rbegin(), s1.rend());
    reverse(v1.begin(),v1.end());
    reverse(s1.begin(), s1.end());
```

```

reverse(d1.begin(), d1.end());
for_each(v1.begin(), v1.end(), Out<int>(cout) );
for_each(s1.begin(), s1.end(), Out<int>(cout) );
for_each(d1.begin(), d1.end(), Out<int>(cout) );cout<<endl;
return 0;
}

```

Program outputs:

- A. 5 4 3 2 1 1 2 3 4 5 1 2 3 4 5
- B. 1 2 3 4 5 1 2 3 4 5 5 4 3 2 1
- C. no output
- D. 1 2 3 4 5 5 4 3 2 1 1 2 3 4 5
- E. compilation error

Correct Answer: E
Section: Volume B
Explanation

Explanation/Reference:

QUESTION 87

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

```

#include <vector>
#include <set>
#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<<" "; } };
bool Greater(int v1, int v2) { return v1<v2; }
int main() {
    int t[]={8, 10, 5, 1, 4, 6, 2, 7, 9, 3};
    vector<int> v1(t, t+10);
    sort(v1.begin(), v1.end(), Greater);
    for_each(v1.begin(), v1.end(), Out<int>(cout));cout<<endl;
    return 0;
}

```

```
}
```

Program outputs:

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

Correct Answer: B

Section: Volume B

Explanation

Explanation/Reference:

QUESTION 88

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

```
#include <iostream>
#include <map>
#include <string>
using namespace std;
int main(){
    int second[] = { 3, 4, 2, 1, 6, 5, 7, 9, 8, 10 };
    string first[] = {"three", "four", "two", "one", "six", "five", "seven", "nine", "eight", "ten"};
    map<int, string> m;
    for(int i=0; i<10; i++) {
        m.insert(pair<int, string>(second[i], first[i]));
    }
    if (m[11] == "eleven") {
        cout<<"eleven ";
    }
    for(map<int, string>::iterator i=m.begin(); i!= m.end(); i++) {
        cout<<i->second<<" ";
    }
    cout<<m.size();
    return 0;
}
```

- A. program outputs: one two three four five six seven eight nine ten 11

- B. program outputs: one two three four five six seven eight nine ten 10
- C. program outputs: one two three four five six seven eight nine ten 10
- D. program outputs: eleven one two three four five six seven eight nine ten 10
- E. runtime exception

Correct Answer: A
Section: Volume B
Explanation

Explanation/Reference:

QUESTION 89

What will happen 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());
    multiset<int, greater<int> > s2(v.begin(), v.end());
    for(multiset<int, greater<int> >::iterator i=s2.begin();i!= s2.end(); i++) {
        cout<<*i<<" ";
    }
    for(multiset<int>::iterator i=s1.begin();i!= s1.end(); i++) {
        cout<<*i<<" ";
    }
    cout<<endl;
    return 0;
}
```

The output will be:

- A. 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9
- B. 9 8 7 6 5 4 3 2 1 0 9 8 7 6 5 4 3 2 1 0
- C. 0 1 2 3 4 5 6 7 8 9 9 8 7 6 5 4 3 2 1 0
- D. 9 8 7 6 5 4 3 2 1 0 0 1 2 3 4 5 6 7 8 9

Correct Answer: D
Section: Volume B
Explanation

Explanation/Reference:

QUESTION 90

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

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

int main () {
    int t[] = {1,2,3,3,5,1,2,4,4,5};
    vector<int> v (t,t+10);
    vector<int>::iterator it = v.begin();

    while ( (it = adjacent_find (it, v.end())) != v.end()) {
        cout<<it?v.begin()<<" ";it++;
    }
    cout<< endl;
    return 0;
}
```

- A. program outputs: 2 3
- B. program outputs: 2 7
- C. program outputs: 3 8
- D. compilation error
- E. program will run forever

Correct Answer: B
Section: Volume B
Explanation

Explanation/Reference:

QUESTION 91

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

```
#include <deque>
#include <vector>
#include <iostream>
using namespace std;
int main ()
{
    int t[] = {1, 2, 3, 4, 5};
    vector<int>v1(t, t+5);
    deque<int>d1;
    d1.assign(v1.end(), v1.begin());
    for(int i=0; i<d1.size(); i++)
    {
        cout<<d1.at(i)<<" ";
    }
    cout<<endl;
    return 0;
}
```

- A. program outputs 5 4 3 2 1
- B. program outputs 1 2 3 4 5
- C. compilation error in line 8
- D. compilation error in line 10
- E. segmentation fault runtime exception

Correct Answer: E

Section: Volume B

Explanation

Explanation/Reference:

QUESTION 92

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

```
#include <iostream>
#include <iomanip>

using namespace std;
```

```
int main ()
{
    float f = 10.126;
    cout.unsetf(ios::floatfield);
    cout<<showpoint<<f<<fixed<<" "<<setprecision(2)<<f<<endl;
    return 0;
}
```

Program outputs:

- A. 10.126 10
- B. 10.126 10.12
- C. 10.1260 10.13
- D. 10.126 10.13

Correct Answer: C
Section: Volume B
Explanation

Explanation/Reference:

QUESTION 93

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

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

int main ()
{
    float f1 = 10.0;
    float f2 = 10.123;
    cout<<noshowpoint<<f1<<" "<<f2;
    return 0;
}
```

Program outputs:

- A. 10 10
- B. 10.0 10.123

- C. compilation error
- D. 10 10.123

Correct Answer: D
Section: Volume B
Explanation

Explanation/Reference:

QUESTION 94

Which changes introduced independently will allow code to compile and display 0 1 8 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 };
    vector<A>v(t, t+10);
    set<A> s1(v.begin(),v.end());
    s1.insert(v.begin(),v.end());
    s1.erase(s1.lower_bound(2),s1.upper_bound(7));
    for(set<A>::iterator i=s1.begin();i!= s1.end(); i++) {
        cout<<i?>getA()<<" ";
    }
    cout<<endl;
    return 0;
}
```

- A. operator int() const { return a;} inserted at Place 1
- B. bool operator < (const A & b) const { return a<b.a;} inserted at Place 1

- C. bool operator < (const A & b) const { return b.a<a;} inserted at Place 1
D. bool operator < (const A & a, const A & b) { return a.getA()<b.getA();} inserted at Place 2

Correct Answer: ABD

Section: Volume B

Explanation

Explanation/Reference:

QUESTION 95

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;
}

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

Program outputs:

- A. 10 5 9 6 2 4 7 8 3 1
B. 10 5 9 6 2 4 7 8 3 1 10 5 9 6 2 4 7 8 3 1
C. compilation error
D. runtime exception/segmentation fault

Correct Answer: D

Section: Volume B

Explanation

Explanation/Reference:

QUESTION 96

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

```
#include <deque>
#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[]={8, 10, 5, 1, 4, 6, 2, 7, 9, 3};
    deque<int> d1(t, t+10);
    sort(d1.begin(), d1.end());
    deque<int>::iterator it = upper_bound(d1.begin(), d1.end(), 4);
    for_each(it, d1.end(), Out<int>(cout));cout<<endl;
    return 0;
}
```

Program outputs:

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

Correct Answer: A

Section: Volume B

Explanation

Explanation/Reference:

QUESTION 97

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;} };

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

Correct Answer: D
Section: Volume B
Explanation

Explanation/Reference:

QUESTION 98

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

```
#include <vector>
#include <iostream>
#include <algorithm>
using namespace std;
template<typename T>class B { T val;
public:
    B(T v):val(v){}
    T getV() const {return val;} bool operator < (const B & v) const { return val<v.val;} };
template<class T>ostream & operator <<(ostream & out, const B<T> & 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<<" "; } };
bool Less(const B<float> &a, const B<float> &b) { return int(a.getV())<int(b.getV());}
int main() {
    float t[]={2.28, 1.66, 1.32, 3.94, 3.64, 2.3, 2.98, 1.96, 2.62, 1.13};
    vector<B<float> > v1; v1.assign(t, t+10);
    stable_sort(v1.begin(), v1.end(), Less);
    for_each(v1.begin(), v1.end(), Out<B<float> >(cout));cout<<endl;

    return 0;
}
```

Program outputs:

- A. 1.66 1.32 1.96 1.13 2.28 2.3 2.98 2.62 3.94 3.64
- B. 1.13 1.32 1.66 1.96 2.28 2.3 2.62 2.98 3.64 3.94
- C. compilation error
- D. 3.94 3.64 2.98 2.62 2.3 2.28 1.96 1.66 1.32 1.13
- E. the exact output is impossible to determine

Correct Answer: A

Section: Volume B

Explanation

Explanation/Reference:

QUESTION 99

What happens when you attempt to compile and run the following code? Choose all possible answers.

```
#include <iostream>

using namespace std;

template <class T>
class A {
    T _v;
public:
    A() {}
    A(T v): _v(v){}
    friend ostream & operator<<(ostream & c, const A<T> & v) {
        c<<v._v;return c;
    }
};

int main()
{
    A<int>a(10);
    cout<<a<<endl;
    return 0;
}
```

- A. program will display:10
- B. program will not compile
- C. program will compile
- D. program will run without output

Correct Answer: AC

Section: Volume B

Explanation

Explanation/Reference:

QUESTION 100

What will happen when you attempt to compile and run the following code? Choose all that apply.

```
#include <iostream>
```

```

#include <algorithm>
#include <vector>
#include <set>
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; }
    bool operator < (const A & b) const { return a<b.a;}
};
class F {
    A val;
public:
    F(A & v):val(v){}
    bool operator() (A & v) {
        if (v.getA() == val.getA()) return true;
        return false;
    }
};
int main() {
    int t[] = { 10, 5, 9, 6, 2, 4, 7, 8, 3, 1 };
    vector<A> v1(t, t + 10);
    set<A> s1(t, t + 10);
    A a(6); F f(a);
    find_if(s1.begin(), s1.end(), f);
    if (find_if(v1.begin(), v1.end(), f) != v1.end()) {
        cout<<"Found!\n";
    } else {
        cout<<"Not found!\n";
    }
    return 0;
}

```

- A. it will compile successfully
- B. it will display Found!
- C. it will display Not found!
- D. it will not compile successfully

Correct Answer: D

Section: Volume B

Explanation

Explanation/Reference:

QUESTION 101

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

```
#include <vector>
#include <set>
#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<<" "; } };
template <typename T> struct Sequence {
    T start; T step;
    Sequence(T start, T step):start(start), step(step){}
    T operator()() { T v = start; start+=step; return v; } };
bool Less(float a, float b) { return int(a)<int(b);}
int main() {
    float t[]={2.28, 1.66, 1.32, 3.94, 3.64, 2.3, 2.98, 1.96, 2.62, 1.13};
    vector<float> v1; v1.assign(t, t+10);
    stable_sort(v1.begin(), v1.end(), Less);
    for_each(v1.begin(), v1.end(), Out<float>(cout));cout<<endl;

    return 0;
}
```

Program outputs:

- A. 1.66 1.32 1.96 1.13 2.28 2.3 2.98 2.62 3.94 3.64
- B. 1.13 1.32 1.66 1.96 2.28 2.3 2.62 2.98 3.64 3.94
- C. compilation error
- D. 3.94 3.64 2.98 2.62 2.3 2.28 1.96 1.66 1.32 1.13
- E. the exact output is impossible to determine

Correct Answer: A

Section: Volume B

Explanation

Explanation/Reference:

QUESTION 102

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

```
#include <vector>
#include <set>
#include <iostream>
#include <algorithm>
using namespace std;
class B {
    int val;
public:
    B(int v):val(v){}
    operator int() { return val;}
};
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++; } };
bool predicate(int v) { return v%2==0; }
int main() {
    vector<int> v1(10);
    generate_n(v1.begin(), 10, Sequence(1));
    for_each(v1.begin(), remove_if(v1.begin(), v1.end(), predicate), Out<int>(cout));cout<<endl;
    return 0;}
```

Program outputs:

- A. 1 3 5 7 9 6 7 8 9 10
- B. 1 3 5 7 9
- C. 2 4 6 8 10
- D. compilation error
- E. no output

Correct Answer: B

Section: Volume B
Explanation

Explanation/Reference:

QUESTION 103

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

```
#include <iostream>

using namespace std;

template <typedef T>
class A {
    T _v;
public:
    A(T v): _v(v){}
    T getV() { return _v; }
};

int main()
{
    A<int> a(1);
    cout << a.getV() << endl;
    return 0;
}
```

- A. program will display:1
- B. program will not compile
- C. program will compile
- D. program will cause runtime exception

Correct Answer: B
Section: Volume B
Explanation

Explanation/Reference:

