Functions

1. Given:

#include <iostream>

using std::cout;

void f(signed char c) { cout << “Signed char\n”; }

void f(unsigned char c) {cout << “Unsigned char\n”; }

int main() {

char c1 = ‘a’;

f(c1);

}

a) The output is: “Signed char\n”.

b) The output is: “Unsigned char\n”.

c) The output is implementation dependant.

d) There is a compilation error. Why?

e) There is a link error. Why?

(2) Given file A.cpp:

#include <iostream>

void f(int) { std::cout << “f(int)”; }

And file B.cpp:

#include <iostream>

void f(double) { std::cout << “f(double)”; }

int main() {

f(3);

}

a) The output is “f(int)”.

b) The output is “f(double)”.

c) There is a compilation error. Why?

d) There is a link error. Why?

3) Given the file header.h:

#include <iostream>

void f(int d);

And the file A.cpp:

#include “header.h”

void f(int d = 10) {std::cout << d << “\t”; }

And the file B.cpp:

#include “header.h”

int main() {

f();

f(5);

}

a) The output is “10 5”.

b) The output is “??? 5”, where ??? is undefined.

c) There is a compilation error. Why?

d) There is a link error. Why?

4) Given:

#include <iostream>

using std::cout;

void f(float) { cout << “f(float)”; }

void f(long double) {cout << “f(long double)”; }

int main() {

f(2.0);

}

a) The output is “f(float)”.

b) The output is “f(long double)”.

c) There is an ambiguity when calling f(2.0). Due to floating point promotions.

d) There is a link error.

5) Given:

#include <iostream>

using std::cout;

using std::endl;

void f(int&) { cout << “A”; }

void f(const int&) {cout << “B”; }

int main() {

int i = 10;

const int ci = 11;

f(i);

f(ci);

}

a) The output is “AA”.

b) The output is “AB”.

c) The output is “BA”.

d) The output is “BB”.

e) There is a compilation error. Why?

f) There is a link error. Why?

6) Given:

int f() { return 1; }

double f() { return 2.5; }

int main() {

int ret = f();

return ret ;

}

a) The returned value is 1.

b) The returned value is 2.

c) The returned value is 3.

d) There is a compilation error. Why?

e) There is a link error. Why?

7) Given:

#include <iostream>

void f(int) { std::cout << "int"; }

void f(double) { std::cout << "double"; }

int main() {

char a = 'a';

f(a);

}

a) The output is "int".

b) The output is "double".

c) There is a compilation error. Why?

d) There is a link error. Why?

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(8) Write a sort() function that takes a pointer of ints and its size, and sort them incrementally

(9) Create a function that takes an argument by value as a **const**; then try to change that argument in the function body.

(10) Define a function that takes a **double** argument and returns an **int**. Create and initialize a pointer to this function, and call the function through your pointer.

(11) Declare a pointer to a function taking an **int** argument and returning a pointer to a function that takes a **char** argument and returns a **float**.