Type your answers.

Consider the C++ “union” program demonstrated in class called mix.cpp.

1. a) When you run mix.cpp and print out the bit addresses from left to right, do the addresses increase or decrease? ______________


c) What is the integer value associated with the float value of 1001.001? ______________

2. C uses a null character to end a string. The string “CSC-361” would actually be an array of eight elements: ‘C’ ‘S’ ‘C’ ‘-’ ‘3’ ‘6’ ‘1’ ‘0’. To compare two string the function strcmp(string1, string2) is used. If the result is <zero, string1 is less than string2 in dictionary order. If it is >zero, the first string is larger than the second is. If it is = 0, the two strings are the same. Suppose there is no such function in C or C++. Write code for the strcmp function:

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

int Strcmp ( char * , char * );

int main ()
{
    char t1[] = "Jello", t2[] = "Jell", t3[] = "Jello",
    t4[] = "Jenny Lynn", t5[] = "Apple", t6[] = "Name";

    cout << Strcmp(t1, t2) << endl;
    cout << Strcmp(t1, t3) << endl;
    cout << Strcmp(t1, t4) << endl;
    cout << Strcmp(t1, t5) << endl;
    cout << Strcmp(t1, t6) << endl;
    cin.ignore();

    return 0;
}
```

```cpp
int Strcmp ( char * s1, char * s2 )
{
```
3. Suppose we implement sets as they are in Pascal.

For example

```c
bool DigitSet1 [ 10 ]; would represent a set of digits from 0, 1, 2, 3, 4, 5, 6, 7, 8, 9. For example if (DigitSet1[4]) is true, then 4 would be in the set. If (!CAPSet1[5]), then 5 would not be in the set.
```

Suppose DigitSet1, DigitSet2, UNION, COMPLEMENT, and DigitSet were all such set arrays.

For example, if DigitSet was the array {true, false, false, true, true, false, false, false, false, false}, then 0, 3, and 4 are in the set.

a. Write a function to find the union (UNION) of two digit letter sets:

```c
void union ( bool DigitSet1[], bool DigitSet2[], bool UNION[] )
{
}
}
```

b. Do the same for complement:

```c
void complement ( bool CAPSet[], bool COMPLEMENT[] )
{
}
}
```

c. Write a function to print out all the digits in a DigitSet:

```c
void print ( bool DigitSet[] )
{
}
}
```