**Question 1:** Represent -24.12 in IEEE-754 format with the number of bits of the sign domain being 1 (0 if positive and 1 if negative), the exponent domain being 7, and the fraction domain being 8.

**Question 2:** What is the two's complement system? If the two's complement system has 8 bits, what are the largest and smallest numbers that can be represented?

**Question 3**: Given a set A={x, y, z, t, u, v} corresponding to the significant bits {2, 3, 5, 1, 0, 4}. Which string will the number x=33 represented by set A correspond to?

**Question 4**: Suppose we have a data type A that can be represented by 10 bits. How many possible subsets of set A[<=3] (the set of ordered lists containing elements of data type A with a maximum size of 3) are there?

**Question 5:** Infer the data type for the variables: a, b, c, x, y

def foo( a, b, c):

if c:

return a + b

return a

foo(x, 1, y)

**Question 6:** Write the equivalent code without reduction.

A = x == 2 ? y == z ? x : y : z;

**Question 7:** Represent the following expression in the order of pre, middle, and post:

( a + b ) - c \* e + d / b \* a

Knowing that +, - have the right associative property and \*,/ have the left associative property.

**Question 8:** State the possible outcomes of the following expressions.

a – (b == 1)

a – (b = 1)

a + (a == 1)

a + (a=1)

(a = 1) || a

**Question 9:** How does the *else* statement work in Python?

**Question 10:** How does the *continue* statement work in *do…while* structure in C++?