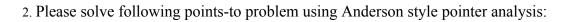CS 898AE "Software Analysis Methods" Quiz 2   April, 2021
(Please print your name and ID number)
Name _____   Number: _____

1. Please use set-constraint based analysis to determine the output of the main function.

```
int foo(int i) {
  int q;
  q = 2 * i;
  return q;
}
int fun(int n) {
  if(n > 0)
    return n;
  return 0;
}
int fff(int k) {
  int m;
  k = m + 1;
  return k;
}

void main() {
  int a = 5, b = 10;
  int r = foo(a);
  int s = fun(a);
  int t = fff(b);
  print("%d, %d, %d",r,s,t);
}
```

2. Please solve following points-to problem using Anderson style pointer analysis:

p = &a;
q = &b;
*p = q;
r = &c;
s = p;
t = *p;
*s = r;
t=&d;

3. Please do backward static slicing on the following program. The criterion is (S10,Y)

```
        begin
S1:         read(X);
S2:         if (X < 0)
            then
S3:             Y := f₁(X);
S4:             Z := g₁(X);
            else
S5:             if (X = 0)
                then
S6:                 Y := f₂(X);
S7:                 Z := g₂(X);
                else
S8:                 Y := f₃(X);
S9:                 Z := g₃(X);
                end_if;
            end_if;
S10:        write(Y);
S11:        write(Z);
        end.
```