7.) Assume the following Ada program was compiled and executed using the static-scoping rules. What value of x is printed in procedure Sub1? Under dynamic-scoping rules, what value of x is printed in procedure Sub1?

Procedure Main is
   X: Integer;
   procedure Sub1 is
      begin -- of Sub1
         static-scoping, x has a value of 5.
         Put(X);
      end; -- of Sub1
      procedure Sub2 is
         X: Integer;
         begin -- of Sub2
            dynamic-scoping, x has a value of 10.
            X := 10;
            Sub1
         end; -- of Sub2
         begin -- of Main
            X := 5;
            Sub2
         end; -- of Main
   end; -- of Main

8.) Consider the following program:

   procedure Main is
      X, Y, Z : Integer;
      procedure Sub1 is
         A, Y, Z : Integer;
         procedure Sub2 is
            A, B, X : Integer;
            begin -- of Sub2
               ... end; -- of Sub2
            begin -- of Sub1
               ... end; -- of Sub1
procedure Sub3 is
  A, X, W : Integer;
  begin -- of Sub3
    …
    End; -- of Sub3
  begin -- of Main
    …
    end; -- of Main

List all the variables, along with the program units where they are declared, that are visible in the bodies of Sub1, Sub2, and Sub3, assuming static scoping is used.

  In sub1, sub1.a, sub1.y, and sub1.z are visible, and main.x is also visible.
  In sub2, sub2.a, sub2.b, sub2.z, sub1.y, and main.x are visible.
  In sub3, sub3.a, sub3.x, sub3.w, main.y, and main.z are visible.

10.) Consider the following C program:

Void fun(void) {
  Int a, b, c; /* definition 1 */
  …
  While (...) {
    Int b, c, d; /* definition 2*/
    …<----------------------------------1
    Point 1: b of 2, c of 2, d of 2, a of 1
    …
  …<----------------------------------2
  Point 2: c of 3, d of 3, e of 3, b of 2, a of 1
    …
  While (...) {
    Int c, d, e; /* definition 3 */
    …<----------------------------------3
    Point 3: b of 1, c of 2, d of 2, a of 1
    }<----------------------------------4
    Point 4: a of 1, b of 1, c of 1
    …}