SENG2200/6220 –Programming Languages & Paradigms
Self-Quiz for Week 11, Semester 1, 2020

True/False Questions.

1. Typical computer architecture can handle recursions as efficiently as loops.

2. A pure function has no side effects that the same input always results in the same output.

3. The following functions are pure function.

```
define func1 (a)
   return sin(a)
define func2 (b, c)
   return max(b, c)
define func3 (seed)
   return random(seed)
```

4. The recursive width of function A is 3, the recursive height of A for A(4) is 4 and the recursive height of B for A(4) is 3.

```
define A(x)
   if (x > 0)
       A(x-1)
       B(x)
```

5. A recursion can always be converted to a tail recursion for improving efficiency.

Short-Answer Questions

6. Implement a Scheme function (using recursion) to reverse a list. For example,
   Input: (1 2 a c)
   Output: (c a 2 1)