COEN 020 Name: _____ Fall 2017

Quiz #7

Monday, November 6th

1. [10 pts] Write a function in ARM assembly that converts a floating-point value into an integer using truncation. The function prototype is:

```
int32_t Truncate(float x) ;
```

```
Truncate:   VCVT.S32.F32    S1,S0       // S1 ← (int32_t) x
            VMOV            R0,S1       // R0 ← S1
            BX              LR
```

2. [10 pts] Write a function in ARM assembly that returns the average of two floating-point values. The function prototype is:

```
float Average(float x, float y) ;
```

```
Average:    VADD.F32    S0,S0,S1        // S0 ← x + y
            VMOV        S1,2.0          // S1 ← 2.0
            VDIV.F32    S0,S0,S1        // S0 ← (x + y) / 2.0
            BX          LR
```

3. [10 pts] Write a function in ARM assembly using an IT block that returns the maximum of two floats. The function prototype is:

```
float Max(float x, float y) ;
```

```
   Max:     VCMP.F32    S0,S1           // Compare x and y
            VMRS        APSR_nzcv,FPSCR // get the flags
            IT          LE              // Enable VMOV if x<=y
            VMOVLE      S0,S1           // x <= y, so S0 ← y
            BX          LR
```