COEN 313
Vector Processing HW

1. How many cycles will it take to process these vector instructions (i,e. the cycles needed until the last vector element is processed).

   a. vld vf1, 0(x1) ; // The first element is loaded after 10 cycles,

   10 cycles + 64 elements = 74 cycles

   b. vadd vf1, vf2, vf3; // the first element addition is completed in 4 cycles

   4 cycles + 64 elements= 68 cycles

   c. vmul vf1, vf2, vf3; // the first element multiplication is completed in 6 cycles

   6 cycles + 64 elements = 70 cycles

   d. vsd vf1, 0(x1) ; the first element is stored after 8 cycles.

   8 cycles + 64 elements = 72 cycles

2. Assuming vectors instructions are chained where possible, calculate how many cycles are needed to complete the following program snippet (vf2 and vf5 already contain needed data).

   vld vf1, 0(x1)

   vadd vf3, vf1, vf2

   vmul vf4, vf3, vf5

   vst vf4, 0(x2)

   (10 + 4 + 6 + 8) chained cycles + 64 elements = 92 cycles