

Last name:

First name:

**CSE341 – SPRING 2018    HOMEWORK 2 Due: Feb 19, 2018 10:00am**

1. For the following C statement, what is the corresponding MIPS assembly code? Assume that the variables *f*, *g*, and *h*, are given and are assigned to registers *\$s2*, *\$s3*, and *\$s4* respectively. Use a minimal number of MIPS assembly instructions.  
 $f = (g - h) + 5;$

2. Show how the value *0x1badcef5* would be arranged in memory of a little-endian and a big endian machine. Assume the data is stored starting at address *0x2000* (specify memory byte content at address *0x2000*, *0x2001*, *0x2002* and *0x2003* in each case.

3. Translate the following C code to MIPS. Assume that *i*, and *j* have fixed values of 4 and 8 respectively. Assume that the base address of the arrays *A* and *B* are in registers *\$s2* and *\$s3*, respectively. Assume that the elements of the arrays *A* and *B* are 32 bit words:  
 $B[4] = A[i] + A[j]$

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4. Assume that registers \$s0 and \$s1 hold the values 0x80000010 and 0xA0000001, respectively.
  - a. What is the value of \$t0 for the following assembly code?  
add \$t0, \$s0, \$s1
  
  - b. For the contents of registers \$s0 and \$s1 as specified above, what is the value of \$t0 for the following assembly code?  
sub \$t0, \$s0, \$s1
  
  - c. For the contents of registers \$s0 and \$s1 as specified above, what is the value of \$t0 for the following assembly code sequence  
add \$t0, \$s0, \$s1  
add \$t0, \$t0, \$s0
  
5. Provide the type and assembly language instruction for the following binary value:  
0000 0010 0001 0000 1000 0000 0010 0000<sub>two</sub>
  
6. Provide the type, assembly language instruction, and binary representation of instruction described by the following MIPS fields:  
op=0, rs=3, rt=2, rd=3, shamt=0, funct=34