**CS224 - Fall 2016**

**Quiz No. 1**

**Take home quiz**

**October 14, 2016**

**Student Name: Serhat Aras**

**Section: 2**

**Notes**:

1. Due date: First class day of your section in the week of October 17. 2. Turn in your printed paper at the beginning of the class in the first 10 minutes after that time your submission will not be accepted. 3. Only printed paper is accepted no EXCEPTION. 4. Solutions prepared by Word are preferred. 4. As it is announced in the classroom only the students who were in the class on October 14 can submit their work.

**1. Assume that we have the following pseudo instruction in MIPS.**

**multi $t1, $t2, 10 # $t1= $t2 \* 10**

**Give the possible set of symbolic instructions that can be used for the implementation of this pseudo instruction.**

add $1,$0,0x0000000a # add $1,$0,10// $1=0+10

mul $10,$1 # $t2\*10

mflo $9 # $t9=lo

**2. Assume that we have the following pseudo instruction in MIPS.**

**modi $t1, $t2, 10 # $t1= $t2 % 10**

**Give the possible set of symbolic instructions that can be used for the implementation of this pseudo instruction.**

li $t3,10

div $t2, $t3

mfhi $t1 # remainder stored in hi

**3. Generate the object code generated for**

**sw $t1, 40($t5)**

**Give the generated instruction in octal.**

Sw instruction (I type)

opcode(sw)= 1010112=4310

$t5=011012 =1310 (Rs)

$t1=010012=810 (Rt)

40= 0000 0000 0010 1000 2

(101011) (01101) (01001) (0000 0000 0010 1000)

opcode rs rt immidiate

255522000508

**4. For the following declarations in the data segment give the symbol table.**

.data

a: .word 1

b: .space 200

c: .word 2, 3

Adress Value

a: 0x10010000--------------0x00000001

b: 0x10010005--------------0x00000000

---------- all zero between ----------

0x100100cb--------------0x00000000

c: 0x100100cc--------------0x00000002

0x100100d0--------------0x00000003