EE319K Fall 2005 Quiz 1A Solution

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This is a closed book exam. You must put your answers on this piece of paper only. You have 50 minutes, so allocate your time accordingly. ***Please read the entire quiz before starting.***

(5) Question 1. Give the decimal value…..…	$C3 = -128+64+2+1 = **-61**
(5) Part 2a. Specify **`0`** or **`1`** ……..……	100 - 210 = -110 (doesn't fit) **C=1**
(5) Part 2b. Specify **`0`** or **`1`** ……..……	100 - -46 = +146 (doesn't fit) **V=1**
(5) Question 3. Specify A-H ……..….	C) 16-bit signed fixed-point number with resolution of 0.01
(5) Question 4. Give the range….	**Precision** is 4000 alternatives (0 to 3999) $\mathbf{R_{max}}$ is 399.9Ω
(5) Question 5. Show the machine code….	$6E5B
(5) Question 6. Give example inputs, specify "none" if none exist.	**None**, 255*255<65535
(5) Question 7. Give example inputs, specify "none" if none exist.	**Divide by 0 causes overflow**
(5) Part 8a. What value is pushed?…….….	Return address is pushed **16-bit $5005**

(10) Part 8b. Simplified memory cycles (you may or may not need all 5 entries)

R/W	Addr	Data	Changes
R	$5008	$5E	IR=$5E, PC=$5009
R	$5009	$02	EAR=$0002, PC=$500A
W	$0002	$12	

W	$0003	$34	

(15) Question 9. Write the assembly language. (not a subroutine or a main program, just instructions)

```
; Solution 1
  bclr DDRT,#$08
  bset DDRT,#$04

; Solution 2
  ldaa DDRT
  anda #$F7  ; clear bit 3
  oraa #$04  ; set bit 2
  staa DDRT
```

(30) Question 10. Write the assembly language subroutine. (Do not include the main program)

```
; Solution 1
;*******Set5***********
; Initializes memory $3900 to 397F to value 5
; inputs: none
; outputs: none
; errors: none
Set5 ldx  #$3900
loop movb #5,1,x+ ; copy value to memory
     cpx  #$397F
     bls  loop
     rts
; Solution 2
;*******Set5***********
; Initializes memory $3900 to 397F to value 5
; inputs: none
; outputs: none
; errors: none
Set5 ldx  #$3900
     ldaa #128
     ldab #5
loop stab 1,x+ ; copy value to memory
     dbne A,loop
     rts
; Solution 3
;*******Set5***********
; Initializes memory $3900 to 397F to value 5
; inputs: none
; outputs: none
; errors: none
Set5 ldx  #$3900
     ldaa #128
     ldab #5
loop stab 1,x+ ; copy value to memory
     deca
```

```
     bne  loop
     rts
```