

Student #:

Name:

Quiz #3-1 2018 (5 min.)

Note 1: **Return** the answer sheet (even the blank one) to show your attendance.

Consider the ARM assembly function whose arguments are given in r0, r1, r2 and r3.

```
add_int PROC
    BICS      r12, r2, #3
    BEQ       label2
    VDUP.32   q1, r3
    LSRS      r2, r2, #2
    BEQ       label2
label1
    VLD1.32   {d0,d1}, [r1]!
    VADD.I32  q0, q0, q1
    SUBS      r2, r2, #1
    VST1.32   {d0,d1}, [r0]!
    BNE       label1
label2
    BX        lr
ENDP
```

Assume that r0, r1, r2 and r3 contain **0x10001000**, **0x10001040**, **0x00000008** and **0x000000ff**, respectively, and all the memory locations are initialized to **0x00000000** when the function has just been called. Provide **all** the values (e.g., 0x00000000) of the memory locations below **just before** the function is **returned**. [10pt].

0x10001000	0xff	0x10001030	0x00
0x10001004	:	0x10001034	:
0x10001008	:	0x10001038	:
0x1000100c	:	0x1000103c	:
0x10001010	:	0x10001040	:
0x10001014	:	0x10001044	:
0x10001018	:	0x10001048	:
0x1000101c	0xff	0x1000104c	:
0x10001020	0x00	0x10001050	:
0x10001024	:	0x10001054	:
0x10001028	:	0x10001058	:
0x1000102c	0x00	0x1000105c	0x00

Student #:

Name:

Quiz #3-2 2018 (5 min.)

Note 1: **Return** the answer sheet (even the blank one) to show your attendance.

Consider the ARM assembly function whose arguments are given in r0, r1, r2 and r3.

```
add_int PROC
    BICS      r12, r2, #3
    BEQ       label2
    VDUP.32   q1, r3
    LSRS      r2, r2, #2
    BEQ       label2
label1
    VLD1.32   {d0,d1}, [r1]!
    VADD.I32  q0, q0, q1
    SUBS      r2, r2, #1
    VST1.32   {d0,d1}, [r0]!
    BNE       label1
label2
    BX        lr
ENDP
```

Assume that r0, r1, r2 and r3 contain **0x10001000**, **0x100010¹0~~2~~0**, **0x00000006** and **0x000000ff**, respectively, and all the memory locations are initialized to **0x00000000** when the function has just been called. Provide **all** the values (e.g., 0x00000000) of the memory locations below **just before** the function is **returned**. [10pt].

0x10001000	0x ff	0x10001030	0x 00
0x10001004	⋮	0x10001034	⋮
0x10001008	⋮	0x10001038	⋮
0x1000100c	0x ff	0x1000103c	⋮
0x10001010	0x 00	0x10001040	⋮
0x10001014	⋮	0x10001044	⋮
0x10001018	⋮	0x10001048	⋮
0x1000101c	⋮	0x1000104c	⋮
0x10001020	⋮	0x10001050	⋮
0x10001024	⋮	0x10001054	⋮
0x10001028	⋮	0x10001058	⋮
0x1000102c	0x 00	0x1000105c	0x 00