Quiz #4
Monday, May 1st

ALL QUESTIONS ARE MULTIPLE CHOICE:

Circle the correct assembly language implementation of each C assignment statement:

1. `s64 = s64 - 5 ; // assume: int64_t s64;`

LDRD R0,R1,s64	**LDRD R0,R1,s64**	LDRD R0,R1,s64
SUB R0,R0,5	**SUBS R0,R0,5**	SUBS R0,R0,5
SBC R1,R1,0	**SBC R1,R1,0**	**SUB** R1,R1,0
STRD R0,R1,s64	**STRD R0,R1,s64**	STRD R0,R1,s64

2. `s64 = s64 + s32 ; // assume: int64_t s64; int32_t s32;`

LDRD R0,R1,s64	LDRD R0,R1,s64	**LDRD R0,R1,s64**
LDR R2,s32	**LDRD R2,R3,s32**	**LDR R2,s32**
ADDS R0,R0,R2	ADDS R0,R0,R2	**ASR R3,R2,31**
ADC R1,R1,**0**	ADC R1,R1,R3	**ADDS R0,R0,R2**
STRD R0,R1,s64	STRD R0,R1,s64	**ADC R1,R1,R3**
		STRD R0,R1,s64

3. `s32 = 5 * s32 ; // assume: int32_t s32;`

LDR R0,s32	LDR R0,s32	LDR R0,s32
LDR R1,=5	MUL R2,R0,**5**	LDR R1,=5
MUL R2,R0,R1	STR R2,s32	**S**MUL R2,R0,R1
STR R2,s32		STR R2,s32

4. `s32 = 10 % s32 ; // assume: int32_t s32;`

LDR R0,=10	LDR R0,=10	**LDR R0,=10**
LDR R1,s32	LDR R1,s32	**LDR R1,s32**
SDIV R2,R0,R1	SDIV R2,R0,R1	**SDIV R2,R0,R1**
MLS R3,**R0**,R1,**R2**	**MLA** R3,R1,R2,R0	**MLS R3,R1,R2,R0**
STR R3,s32	STR R3,s32	**STR R3,s32**

5. `s32 = 7 * s32 ; // assume: int32_t s32;`

LDR R0,s32	LDR R0,s32	LDR R0,s32
RSB R0,R0,R0,LSL 3	SUB R0,R0,**LSL 3**,R0	MUL R0,R0,**7**
STR R0,s32	STR R0,s32	STR R0,s32

6. `u64 = u32 * u32 ; // assume: uint64_t u64; uint32_t u32 ;`

LDR R0,u32	**LDR R0,u32**	LDR R0,u32
UMULL R0,R1,R0,R0	**MUL R0,R0,R0**	MUL R0,R0,R0
STRD R0,R1,u64	**LDR R1,=0**	**ASR** R1,R0,31
	STRD R0,R1,u64	STRD R0,R1,u64