

Tyler McKean

ENGIN 446

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## Homework 5

1.) Problem 9.21

Instruction	31-28 cond	25 27-26	I	24-21 cmd	20 S	19-16 Rn	15-12 Rd	11-0	Equivalent Hex
ADD R1, R0, #18	1110	00	1	0100	0	0000	0001	0000 00010010	E2801012
	E		2	8		0	1	012	
ADD R6, R0 2 ror 1	1110	00	1	0100	0	0000	0110	0001 00000010	E2806102
	E		2	8		0	6	102	
MOV R8, R2 LSL #4	1110	00	0	1101	0	0000	1000	0010 00000010	E1A08202
	E		1	A		0	8	202	
EOR R2, R1, #24	1110	00	1	0001	0	0001	0010	0000 00011000	E2212018
	E		2	2		1	2	018	
LDR R1, [R2, R3, LSL#2]	1110	01	1	1100	1	0010	0001	0100 00000011	E7921403
	E		7	9		2	1	403	

2.) Problem 9.22

Instruction	31-28 cond	25 27-26	I	24-21 cmd	20 S	19-16 Rn	15-12 Rd	11-0	Equivalent Hex
LDR R11,[R1,R2]	1110	01	1	1100	1	0001	1011	0000 00000010	E791B002
	E		7	9		1	B	002	
STR R8, 4(R0)	1110	01	0	0100	0	0000	1000	0000 00010000	E4808010
	E		4	8		0	8	010	
SUB R6, R1, R2 LSR#1	1110	00	1	0010	0	0001	0110	0001 00110010	E2416132
	E		2	4		1	6	132	
LDREQ R10, [R0, #4]	0000	01	0	1100	1	0000	1010	0000 00000100	0590A004
	0		5	9		0	A	004	
BNE -4	0001	10	1	0111	1	1111	1111	1111 11111100	1AFFFFFC
	1		A	F		F	F	FFC	

3.) Problem 9.24

Equivalent Hex	31-28 cond	27-26 I	25 cmd	24-21 S	20 Rn	19-16 Rd	15-12 Rd	11-0	Instruction
E2202012	1110	00	1	0001	0	0000	0010	0000 00010010	EOR R2, R0 #18
	E		2	2		0	2	012	
E2806102	1110	00	1	0100	0	0000	0110	0001 00000010	ADD R6, R0, #2 ROR #1
	E		2	8		0	6	102	
1A000001	0001	10	1	0000	0	0000	0000	0000 00000001	BNE 1
	1		A	0		0	0	001	
E691B002	1110	01	1	0100	1	0001	1011	0000 00000010	LDR R11, [R1, R2]
	E		6	9		1	B	002	
E48030A8	1110	01	0	0100	0	0000	0011	0000 10101000	STR R3, 42(R0)
	E		4	8		0	3	0A8	

4.) Problem 9.25

Equivalent Hex	31-28 cond	27-26 I	25 cmd	24-21 S	20 Rn	19-16 Rd	15-12 Rd	11-0	Instruction
E480B0C8	1110	01	0	0100	0	0000	1011	0000 10111000	STR R11, 50(R0)
	E		4	8		0	B	0C8	
0A000001	0000	10	1	0000	0	0000	0000	0000 00000001	BEQ 1
	0		A	0		0	0	001	
0490A004	0000	01	0	0100	1	0000	1010	0000 00000100	LDREQ R10, [R0, #4]
	0		4	9		0	A	004	
E2806102	1110	00	1	0100	0	0000	0110	0001 00000010	ADD R6, R0, #2 ROR #1
	E		2	8		0	6	102	
E3A07001	1110	00	1	1101	0	0000	0111	0000 00000001	MOV R7, #1
	E		3	A		0	7	001	