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CS 516

Professor O’Neal

Assignment 3

Chapter 3 #(4a-f, 7a-e, 9a-d, 13a-d, 15a-d, 18ace, 19ce, 21ace)

4. (a) 10010 --- 18

(b) 10 --- 3

(c) 1011 --- 11

(d) 1000 --- 8

(e) 11111 --- 31

(f) 11110000 --- 240

7. (a) 0-3

(b) 0-7

(c) 0-15

(d) 0-31

(e) 0-(2n-1 + 2n-2 + … + 20)

9. (a) 001001011 + 011010001 = 100011100, C = 0

(b) 100011101 + 011101000 = 1000000101, C = 1

(c) 111111111 + 000000001 = 1000000000, C = 1

(d) 111111111 + 111111111 = 1111111110, C = 1

13. (a) 49 = 011 0001 (bin)

(b) -27 = 110 0101 (bin)

(c) 0 = 000 0000 (bin)

(d) -64 = 100 0000 (bin)

15. (a) 001 1101 --- 29

(b) 101 0101 --- -43

(c) 111 1100 --- -4

(d) 000 0001 --- 1

18. (a) 0 1110 0110 , N = 0, Z = 0, V = 0, C = 0

(c) 0 0110 1111, N= 0, Z = 0, V = 0, C = 1

(e) 1 0000 0110, N = 1, Z = 0, V =1, C = 0

19. (c) -8 to 7 (bin: 1000 - 0111)

(e) -(2N-1) to (2N-1 – 1)

21. (a) 0 0001 0001 , N = 0, Z = 0

(c) 1 1111 0111 , N = 1, Z = 0,

(e) 1 0111 1010 , N = 1, Z = 0

Chapter 4 #(1-6)

1. (a) 65,536 bytes

(b) 65536 / 2 = 32,768 words

(c) 65536 \* 8 = 524,288 bits

(d) 4 + 16(4) + 24 = 92 bits

(e) 524288 / 92 = 5699 times bigger

2. (a) 65536 / 1 = 65,536 instructions

(b) 65536 / 3 = 21,845 instructions

(c) 65536 / 4 = 16384, 16384 \* 2 = 32,768 instructions

3. (a) 0110

(b) Add to r, load byte r<8..15> from memory

(c) 1

(d) Index register, 6AF82C

(e) 010

(f) Indirect

(g) F82C

5. (a) C1 = Word Accumulator

(b) D1 = Load Byte Accumulator

(c) D9 = Load Byte Index Register

(d) DECO a,d ;, a

STRO msg3,d

DECO b,d ;, b)

(e) LDBA '\n',i

STBA charOut,d

STOP

(f) r: .EQUATE 6 ;formal parameter #2h

s: .EQUATE 4 ;formal parameter #2h

temp: .EQUATE 0 ;local variable #2d

swap: SUBSP 2,i ;push #temp

(g) STOP

msg1: .ASCII "Enter an integer: \x00"

msg2: .ASCII "Ordered they are: \x00"

msg3: .ASCII ", \x00"

.END

(h) BR main

a: .BLOCK 2 ;global variable #2d

(i) b: .BLOCK 2 ;global variable #2d

6. (a) 10010 --- 18

(b) 10 --- 3

(c) 1011 --- 11

(d) 1000 --- 8

(e) 11111 --- 31

(f) 11110000 --- 240

(g) DECO a,d ;, a

STRO msg3,d

DECO b,d ;, b)

(h) LDBA '\n',i

STBA charOut,d

STOP

(i) r: .EQUATE 6 ;formal parameter #2h

s: .EQUATE 4 ;formal parameter #2h

temp: .EQUATE 0 ;local variable #2d

swap: SUBSP 2,i ;push #temp