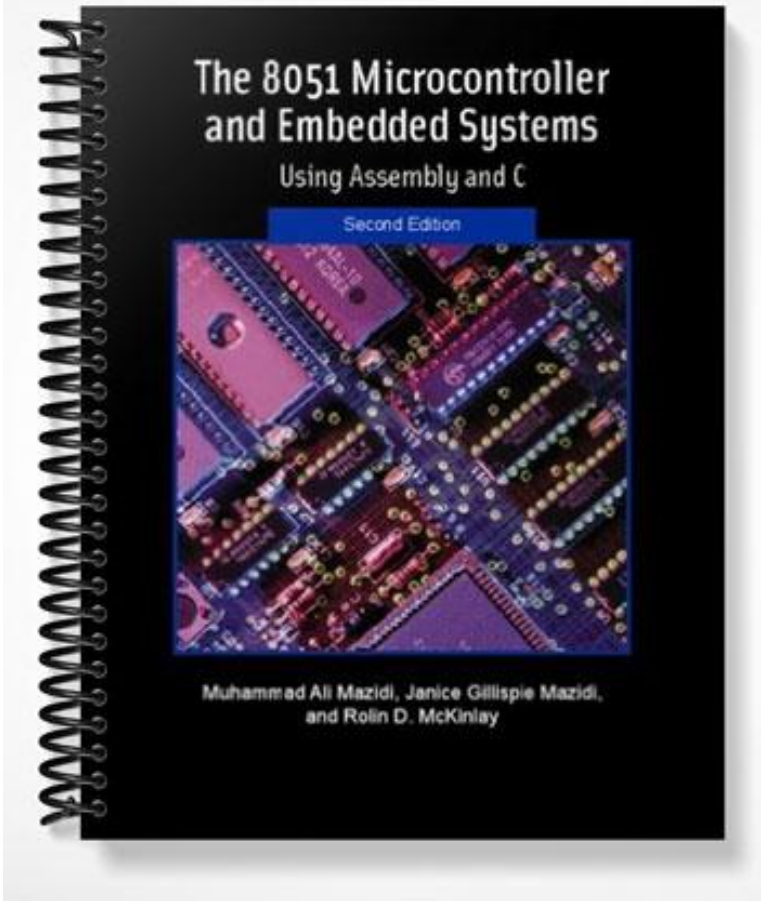
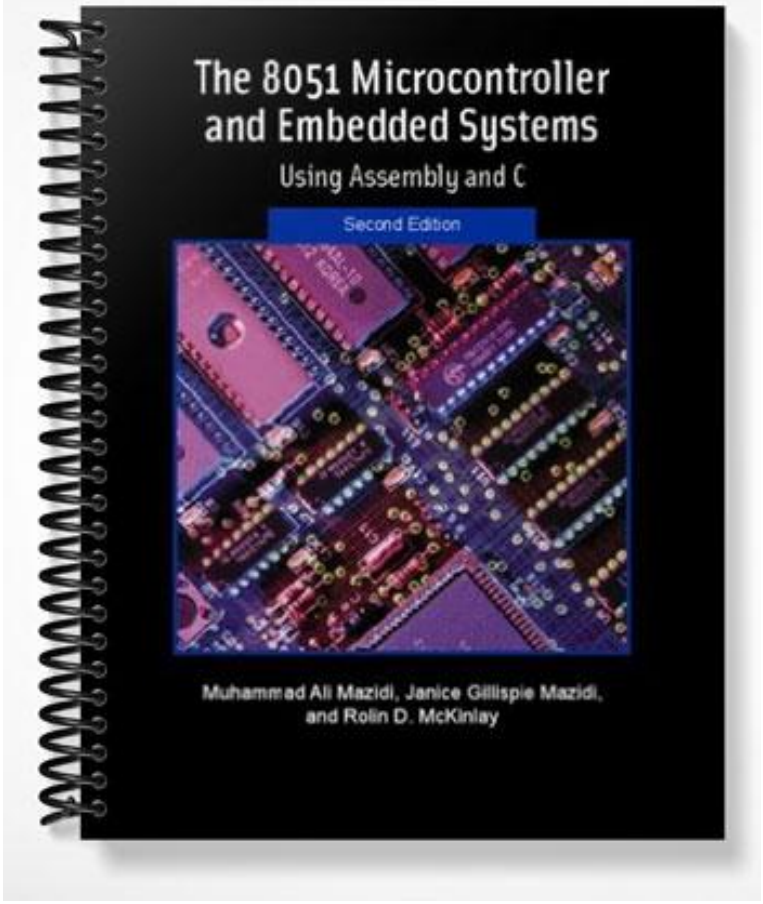
SOLUTIONS MANUAL



SOLUTIONS MANUAL



Instructor's Manual
to accompany

The 8051 Microcontroller and Embedded System

Using Assembly and C

Second Edition

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With Contributions from
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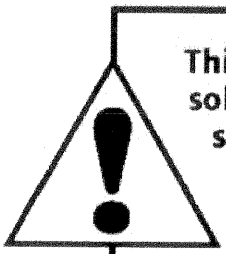
PEARSON
Prentice Hall

Upper Saddle River, New Jersey
Columbus, Ohio



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CONTENTS

CHAPTER 0: INTRODUCTION TO COMPUTING

Section 0.1: Numbering and Coding Systems

1.

(a) $12_{10} = 1100_2$
(b) $123_{10} = 0111\ 1011_2$
(c) $63_{10} = 0011\ 1111_2$
(d) $128_{10} = 1000\ 0000_2$
(e) $1000_{10} = 0011\ 1110\ 1000_2$

2.

(a) $100100_2 = 36_{10}$
(b) $1000001_2 = 65_{10}$
(c) $11101_2 = 29_{10}$
(d) $1010_2 = 10_{10}$
(e) $00100010_2 = 34_{10}$

3.

(a) $100100_2 = 24_{16}$
(b) $1000001_2 = 41_{16}$
(c) $11101_2 = 1D_{16}$
(d) $1010_2 = 0A_{16}$
(e) $00100010_2 = 22_{16}$

4.

(a) $2B9_{16} = 0011\ 1011\ 1001_2, 697_{10}$
(b) $F44_{16} = 1111\ 0100\ 0100_2, 3908_{10}$
(c) $912_{16} = 1001\ 0001\ 0010_2, 2322_{10}$
(d) $2B_{16} = 0010\ 1011_2, 43_{10}$
(e) $FFFF_{16} = 1111\ 1111\ 1111\ 1111_2, 65535_{10}$

5.

(a) $12_{10} = 0C_{16}$
(b) $123_{10} = 7B_{16}$
(c) $63_{10} = 3F_{16}$
(d) $128_{10} = 80_{16}$
(e) $1000_{10} = 3E8_{16}$

6.

(a) 1001010 = 0011 0110
(b) 111001 = 0000 0111
(c) 10000010 = 0111 1110
(d) 111110001 = 0000 1111

7.

(a) 2C+3F = 6B
(b) F34+5D6 = 150A
(c) 20000+12FF = 212FF
(d) FFFF+2222 = 12221

8. (a) 24F-129 = 126_{16}
(b) FE9-5CC = $A1D_{16}$
(c) 2FFFF-FFFFF = 30000_{16}
(d) 9FF25-4DD99 = $5218C_{16}$

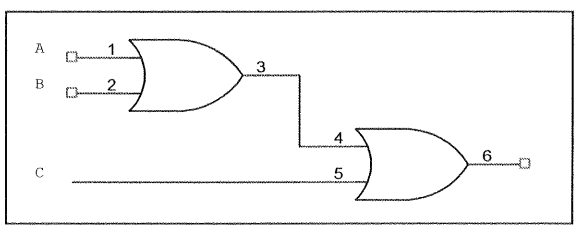
9. (a) Hex: 30, 31, 32 , 33, 34, 35, 36, 37, 38, 39
(b) Binary: 11 0000, 11 0001, 11 0010, 11 0011, 11 0100, 11 0101, 11 0110, 11 0111, 11 1000, 11 1001.

	ASCII (hex)	Binary
0	30	011 0000
1	31	011 0001
2	32	011 0010
3	33	011 0011
4	34	011 0100
5	35	011 0101
6	36	011 0110
7	37	011 0111
8	38	011 1000
9	39	011 1001

10. 000000 22 55 2E 53 2E 41 2E 20 69 73 20 61 20 63 6F 75 "U.S.A. is a cou
000010 6E 74 72 79 22 0D 0A 22 69 6E 20 4E 6F 72 74 68 ntry".."in North
000020 20 41 6D 65 72 69 63 61 22 0D 0A America"..

Section 0.2: Digital Primer

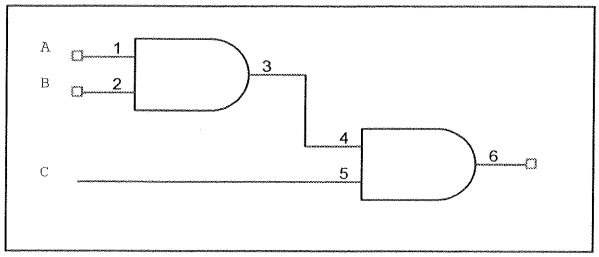
11.



12.

A	B	C	Y
0	0	0	0
0	0	1	1
0	1	0	1
0	1	1	1
1	0	0	1
1	0	1	1
1	1	0	1
1	1	1	1

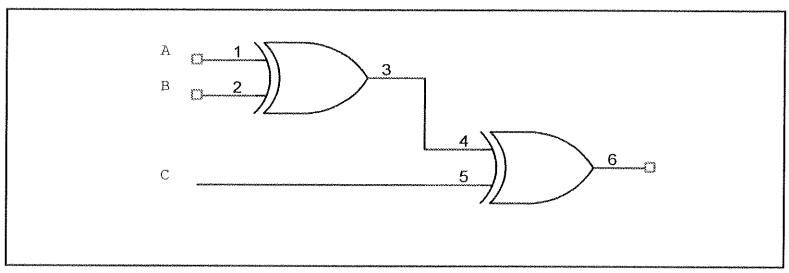
13.



14.

A	B	C	Y
0	0	0	0
0	0	1	0
0	1	0	0
0	1	1	0
1	0	0	0
1	0	1	0
1	1	0	0
1	1	1	1

15.



A	B	C	Y
0	0	0	0
0	0	1	1
0	1	0	1
0	1	1	0
1	0	0	1
1	0	1	0
1	1	0	0
1	1	1	1

16.

A	B	C	Y
0	0	0	1
0	0	1	1
0	1	0	1
0	1	1	1
1	0	0	1
1	0	1	1
1	1	0	1
1	1	1	0