Homework2

- Due Nov 1 at 11:59pm
- Points 100
- Questions 14
- Available Oct 25 at 9am - Nov 1 at 11:59pm
- Time Limit None
- Allowed Attempts 2

This quiz was locked Nov 1 at 11:59pm.

Attempt History

	Attempt	Time	Score
LATEST	Attempt 1	540 minutes	81.89 out of 100

Score for this attempt: 81.89 out of 100
Submitted Oct 26 at 10:04pm
This attempt took 540 minutes.

Question 1
8 / 8 pts

Convert the following decimal numbers to binary. Assume 2's complement encoding.

Your answer should be 8 bits and should **NOT** have spaces.

If you do not remember how to get the negative value of a number, review the 2's complement rules.

Decimal	Binary
92	01011100

86	01010110
-77	10110011
-69	10111011

Answer 1:

Correct! 01011100

Correct!

01011100

Answer 2:

Correct! 01010110

Correct!

01010110

Answer 3:

Correct! 10110011

Correct!

10110011

Answer 4:

Correct! 10111011

Correct!

10111011

Question 2

8 / 8 pts

Convert the following Hexadecimal (base 16) numbers to decimal (base 10).

Assume 2's compliment.

Hexadecimal	Decimal

0x7B	123
0xFF	-1
0xA1	-95
0x39	57

Answer 1:

Correct! 123

Correct!

123

Answer 2:

Correct! -1

Correct!

-1

Answer 3:

Correct! -95

Correct!

-95

Answer 4:

Correct! 57

Correct!

57

Question 3

10 / 10 pts

Convert the following Binary numbers to Hexadecimal. To make it easier to read, I am adding a space between each 4 bits in the binary number. Your Hexadecimal answer should **NOT** have spaces.

Binary	Hexadecimal
1110 1010	0x EA
0010 1011 1111 0110	0x 2BF6
1100 0001 1101	0x C1D
0111 1111 0101	0x 7F5
1001 0011 1000 0100	0x 9384

Answer 1:

Correct! EA

Correct!

EA

Correct Answer

ea

Answer 2:

Correct! 2BF6

Correct!

2BF6

Correct Answer

2bf6

Answer 3:

Correct! C1D

Correct!

C1D

Correct Answer

c1d

Answer 4:

Correct! 7F5

Correct!

7F5

Correct Answer

7f5

Answer 5:

Correct! 9384

Correct!

9384

Question 4

2 / 4 pts

Complete the following binary addition and subtractions. Your answer should be in binary. The spaces are for readability only and your answers should NOT have spaces. .

Add:

11110101 + 01001011 = 101000000

11110101 - 01001011 = 10101010

Answer 1:

You Answered 101000000

Correct Answer

101001010

Correct Answer

1 0100 1010

Answer 2:

Correct! 10101010

Correct!

10101010

Correct Answer

1010 1010

Question 5

0 / 4 pts

Complete the following Hexadecimal Addition and Subtraction. Your answer should be in Hexadecimal.

Add:

0xA496B - 0x396C =0x 6B2CB

0xA496B + 0x396C =0x A832B

Answer 1:

You Answered 6B2CB

Correct Answer

A0FFF

Correct Answer

a0fff

Answer 2:

You Answered A832B

Correct Answer

A82D7

Correct Answer

a82d7

Question 6

4 / 6 pts

We know, if given x which is a power of 2, such that $x = 2^n$ we can calculate the hexadecimal representation of 2^n and vice-versa. Fill in the following chart:

NO SPACES IN YOUR ANSWER

N	2^N in Hexadecimal
67	0x 8000000000000000
30	0x40000000
52	0x 0000000000000

Answer 1:

Correct! 80000000000000000

Correct!

80000000000000000

Correct Answer

8 0000 0000 0000 0000

Answer 2:

Correct! 30

Correct!

30

Answer 3:

You Answered 0000000000000

Correct Answer

10000000000000

Correct Answer

1 0000 0000 0000

Question 7

2 / 2 pts

All computers have a word size. In most modern computers that is 8 bytes (64 bits).

In class we discuss a way you can easily tell what the word size is for your computer is by printing the size of a _____?

Correct!

pointer

Correct Answers

pointer

pointer

Pointer

Question 8

6 / 7 pts

Fill in the chart with the size in bytes for each data types. Assume 64 bit architecture:

Your answer should only be a number.

Data type	Number of bytes:
char	1

short	2
int	4
long	8
float	4
double	8
char*	8

Answer 1:

Correct! 1

Correct!

1

Answer 2:

Correct! 2

Correct!

2

Correct Answer

2 bytes

Answer 3:

Correct! 4

Correct!

4

Correct Answer

4 bytes

Answer 4:

Correct! 8

Correct!

8

Correct Answer

8 bytes

Answer 5:

Correct! 4

Correct!

4

Correct Answer

4 bytes

Answer 6:

You Answered 8

Correct Answer

4

Correct Answer

4 bytes

Answer 7:

Correct! 8

Correct!

8

Correct Answer

8 bytes

Question 9

4 / 4 pts

Fill in the chart below:

Given the following hexadecimal number. Show how this number would be represented on a system that uses Big Endian and Little Endian.

YOUR ANSWER SHOULD NOT CONTAIN SPACES.

Hexadecimal Value	Value in Big Endian	Value in Little Endian
0xFFFF95A637CDFAE1	0x FFFF95A637CDFA	0x E1FACD37A695FF

Answer 1:

Correct! FFFF95A637CDFAE1

Correct!

FFFF95A637CDFAE1

Correct Answer

ffff95a637cdfaf1

Answer 2:

Correct! E1FACD37A695FFFF

Correct!

E1FACD37A695FFFF

Correct Answer

e1facd37a69fffff

Question 10

6 / 8 pts

Fill in the answer for the following Bitwise operations:

~10101 = 01010

10101 & 11001 = 10001

10101 | 11001 = 11101

10101 ^ 11001 = 01100

Answer 1:
Correct! 01010
Correct!
01010
Answer 2:
Correct! 10001
Correct!
10001
Answer 3:
You Answered 11101
Correct Answer
11111
Answer 4:
Correct! 01100
Correct!
01100

Question 11

3 / 3 pts

Left shifting (<<) is the same as multiplying the bit pattern by 2^K.

Right shifting (>>) is the same as dividing the bit pattern by 2^K.

Answer 1:

Correct! multiplying

Correct!

multiplying

Correct Answer

multiply

Correct Answer

Multiply

Correct Answer

Multiplying

Answer 2:

Correct! dividing

Correct Answer

divide

Correct!

dividing

Correct Answer

Divide

Correct Answer

Dividing

Question 12

16 / 16 pts

Fill in the following chart with the appropriate binary numbers. Your answer should **not** have spaces.

X in Hex	X in Binary	X << 2	X>>2(logical)	X>>2(arithmetic)
0x A5	10100101	10010100	00101001	11101001
0x5A	01011010	01101000	00010110	00010110

Answer 1:

Correct! 10100101

Correct!

10100101

Answer 2:

Correct! 10010100

Correct!

10010100

Answer 3:

Correct! 00101001

Correct!

00101001

Answer 4:

Correct! 11101001

Correct!

11101001

Answer 5:

Correct! 01011010

Correct!

01011010

Answer 6:

Correct! 01101000

Correct!

01101000

Answer 7:

Correct! 00010110

Correct!

00010110

Answer 8:

Correct! 00010110

Correct!

00010110

Question 13

4 / 4 pts

Assume a word size of 6 bit:

Fill in the blank below with the range of data for signed and unsigned data of size w = 6. I am not looking for the formula but the data values. (From smallest number to the largest.)

Signed: -32 to 31

Unsigned: 0 to 63

Answer 1:

Correct! -32

Correct!

-32

Answer 2:

Correct! 31

Correct!

31

Answer 3:

Correct! 0

Correct!

0

Answer 4:

Correct! 63

Correct!

63

Question 14

8.89 / 16 pts

Complete the following chart. This is similar to the problem we did in class. I also posted a document explaining an example similar to this.

int	signed magnitude	1's complement	2's complement
-39	10100111	11011000	11011001
-20	10010100	11101011	11101010
-64	11000000	10111111	10111110

Answer 1:

Correct! -39

Correct!

-39

Answer 2:

Correct! 11011000

Correct!

11011000

Correct Answer

1101 1000

Answer 3:

Correct! 11011001

Correct!

11011001

Correct Answer

1101 1001

Answer 4:

Correct! -20

Correct!

-20

Answer 5:

Correct! 10010100

Correct!

10010100

Correct Answer

1001 0100

Answer 6:

You Answered 11101010

Correct Answer

11101100

Correct Answer

1110 1100

Answer 7:

You Answered -64

Correct Answer

-66

Answer 8:

You Answered 11000000

Correct Answer

11000010

Correct Answer

1100 0010

Answer 9:

You Answered 10111111

Correct Answer

10111101

Correct Answer

1011 1101

Quiz Score: 81.89 out of 100