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CIS2420 – Exam 1 – Part 2 of 2 (F)
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1) In your own words describe the difference between little endian order and big endian order. Describe when endianness would be used by a computer system. Name the endian order used on the x86 processor.

1) Calculate the exact value for the largest possible 6-bit signed integer.

_____

2) Create a truth table to show all possible inputs and outputs for the Boolean function **A ∧ ¬B**
Create a truth table to show all possible inputs and outputs for the Boolean function **¬(¬A ∨ B)**
Describe the results of the two truth tables. Who derived the theorem describing what you see?

A	**B**

DECIMAL	HEXADECIMAL	BINARY
0	0	0000
1	1	0001
2	2	0010
3	3	0011
4	4	0100
5	5	0101
6	6	0110
7	7	0111
8	8	1000
9	9	1001
10	A	1010
11	B	1011
12	C	1100
13	D	1101
14	E	1110
15	F	1111

MULTIPLY	1	16	256
0	0	0	0
1	1	16	256
2	2	32	512
3	3	48	768
4	4	64	1024
5	5	80	1280
6	6	96	1536
7	7	112	1792
8	8	128	2048
9	9	144	2304
10	10	160	2560
11	11	176	2816
12	12	192	3072
13	13	208	3328
14	14	224	3584
15	15	240	3840

3) Calculate both the **signed and unsigned decimal** representations for this binary integer

	UNSIGNED	SIGNED
10011111_2	_____	_____

4) Calculate the **minimum** number of bits needed to represent each **unsigned decimal** integer

100_{10}	444_{10}	6000_{10}
_____	_____	_____

5) Calculate the **unsigned decimal** representation of each hexadecimal integer

81_{16}	$20A_{16}$	$17E_{16}$
_____	_____	_____

6) Calculate the **signed 8-bit hexadecimal** representation of each decimal integer

-81_{10}	-105_{10}	-19_{10}
_____	_____	_____

7) Calculate the **pure binary** representation of each fractional decimal number

6 + (7/8) OR (6.875_{10}) _____

5 + (1/2) OR (5.50_{10}) _____

8) How many bits would be needed to represent the decimal number 1.70 in binary?

_____

9) Given 8 binary bits of space after the decimal point, best approximate the decimal number 1.70

1._ _ _ _ _ _ _ _

10) List three CPU status flags that are **neither the carry flag nor the parity flag**. Then briefly describe the purpose of each of your listed flags.

1) _____

2) _____

3) _____

11) Circle the correct answer. Variables (like BYTE, WORD, or DWORD) defined in the data segment of an assembly language program are by default: **SIGNED** **UNSIGNED**