

Name: _____ Student #: _____

Notes:

- **Show your work.**
- Follow all instructions, to include the Homework Policies and Procedures.
- Make sure your answers are clearly marked and legible

Part 1. From the text. Complete the following problems

1.1
1.4
1.8
1.10
1.14
1.18
1.20

Part 2. Base Conversions (not in the book)

2.1 Perform the following conversions:

- a) 305_{10} to Base 2
- b) 457_{10} to Base 8
- c) $6BDA_{16}$ to Base 10
- d) $0101\ 1101_2$ (unsigned number) to Base 10
- e) 267_8 to Base 2
- f) 67_8 to Base 16

2.2 Are the following equal?

- a) 594_{10} and 1122_8
- b) 514_8 and 142_{16}
- c) $5D7_{16}$ and 2730_8
- d) 22_{10} and 12_{16}
- e) 13_8 and 1101_2
- f) 5_{16} and 101_2

2.3 Perform the following conversions.

- a) 4_{10} to Base 4.
- b) 4_7 to Base 6.

2.4 Calculate the numbers from -8 to 8 in both 1's and 2's complement. **Be sure to have enough bits to adequately represent the range.**

2.5 Calculate the signed-magnitude, 1's complement and 2's complement for the following numbers.

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- a) $\pm 23_{10}$
- b) $\pm 16_{10}$
- c) $\pm 27_{10}$
- d) $\pm 55_{10}$

2.6 Given the following *unsigned* numbers, first add them and then indicate whether or not overflow has occurred.

- a) $0001\ 0101_2 + 0000\ 1011_2$
- b) $0111\ 1011_2 + 1100\ 0100_2$
- c) $372_8 + 265_8$
- d) $765_8 + 302_8$
- e) $ABF_{16} + 123_{16}$
- f) $99C_{16} + D23_{16}$