

## **CMSC 216 Quiz 5 Worksheet**

The next quiz for the course will be on Thu, Jul 26. The following list provides more information about the quiz:

- The quiz will be a written quiz (no computer).
- Closed book, closed notes quiz.
- Answers must be neat and legible. **You must use pencil.**
- Check the quiz/exam rules at:

<http://www.cs.umd.edu/~nelson/classes/utilities/examRules.html>

The following exercises cover the material to be included in this quiz. Solutions to these exercises will not be provided, but you are welcome to discuss your solutions with the TA or instructor during office hours. For this quiz, you are responsible for the following Assembly instructions:

- All data movement instructions (irmovl, rrmovl, rmmovl, mrmovl)
- halt
- labels
- All reading data instructions (rdch, rdint, wrch, wrint)
- Integer instructions: addl, subl, multl, modl
- Branch instructions: jmp, jle, jl, je, jne, jge, jg
- ret, call, and how to set a frame (%ebp setting, etc.)

### **Exercises**

1. What is the difference between Big Endian and Little Endian? Suppose we have the value 0x02143657. How would the value be represented using Big/Little Endian?
2. What is the purpose of the .align directive?
3. Write an Assembly program that prints the binary equivalent of a decimal number.
4. Write an Assembly program that defines a **recursive** function that computes the power of a number (e.g.,  $X^Y$ ). The function must have one parameter.
5. Write an Assembly program that defines a function that computes compound interest. The function will have three parameters (principal, rate and years) and rely on two local variables. The formula for compound interest is:

$$\text{Compound Interest Amount} = \text{principal} * (1 + \text{rate}/100)^{\text{Years}}$$

6. Write an Assembly program that determines whether a character array present in memory represents a palindrome. Examples of palindromes are "mom", "racecar", etc.