

CMSC 216 Quiz 1 Worksheet

The first quiz for the course will be on Fri, Jun 10. 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.**

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.

Exercises

1. Read the document available at:

<http://www.cs.umd.edu/~nelson/documents/SuggestionsForWritingComputerPrograms.htm>

2. When it comes to linkage, what is the difference between internal and external linkage?
3. What is role of the operating system?
4. What is a process?
5. Draw a diagram that illustrates how virtual address space is organized. Illustrate the following sections: Program Text, Stack, Heap, Global/Static data.
6. Write the Unix command that will allow us to compile the program myProg.c, and the leave the executable in a file named myProg.x.
7. Write a complete C Program that reads an integer value and prints the odd numbers between 1 and the provided value. You can assume the user will provide a value greater than 1 in the input.
8. Convert 45_{10} to binary.
9. Convert 01101101_2 to decimal.
10. Convert the previous binary number to hexadecimal.
11. Assuming the variables **a** and **b** have the following values:

a $\rightarrow 01101101_2$ and **b** $\rightarrow 10101001_2$

What is the result of the following operations (provide your answers using hexadecimal numbers).

a & b $\rightarrow$
a | b $\rightarrow$
a ^ b $\rightarrow$
~b $\rightarrow$
a << 4 $\rightarrow$
b >> 7 $\rightarrow$

12. Write a function that prints the binary number equivalent to a decimal number.
13. Write a function that returns the number of 1's in an unsigned integer.
14. Write a function that returns the value of a particular bit in an unsigned integer.
15. What is one major difference between #include and Java's import statement?