Midterm Exam Study Guide

To succeed on the midterm exam, you should be prepared to do all of the following:

Algorithms

- 1. Define the term "algorithm."
- 2. Describe an algorithm using pseudocode and flowcharts.
- 3. Design and evaluate simple algorithms to solve problems.

Data Representation

- 4. Convert values between decimal, binary and hexadecimal number systems.
- 5. Identify appropriate number representations for a given application.

Evaluating Math Expressions

- 6. Describe and Identify expressions and how they are evaluated by a computer.
- 7. Write expressions to solve a problem.
- 8. Describe and identify math and general operators.
- 9. Evaluate an expression using order of operations.
- 10. Describe order of operations.

Variables

- 11. Define the term "variable."
- 12. Write expressions using variables.
- 13. Evaluate expressions using variables.

Evaluating General Expressions

- 14. Describe and identify relational, logical, and string operators.
- 15. Write and Evaluate Expressions using mathematical, relational, logical and string operators.

Sequence

- 16. Describe how sequence works in a computer.
- 17. Write and evaluate programs that exhibit sequence.
- 18. Write programs that utilize user input and produce console output.
- 19. Given a sequential program, produce a variable trace of the program execution.

Functions

- 20. Describe the purpose of a function.
- 21. Write code that calls functions.
- 22. Write a function that takes parameters and returns a value.
- 23. Describe what happens in a computer when a function is called.
- 24. Describe variable scope.

Decisions

- 25. Describe how decisions work in a computer.
- 26. Write and evaluate programs that exhibit decisions.

Loops

- 27. Describe how repetition (loops) work in a computer.
- 28. Write and evaluate programs that exhibit repetition.

Structured Programming

- 29. Write and evaluate programs that combine sequence, decisions, repetition and functions.
- 30. Predict when to use and combine sequence, decisions, repetition and functions to solve a problem.