

## ECE 417/617 Assignment #7

Read Chapters 7 and 8 of Steve McConnell, *Code Complete*, 2nd edition, Microsoft Press, 2004.

Then answer the following questions.

### Chapter 7: High-Quality Routines

65. How many magic numbers occur in the example on p. 162?
66. What does McConnell say is the single greatest invention in computer science?
67. List at least five reasons for creating a routine.
68. Give two reasons why it is better to create a routine, even in the case of a simple one-line unit conversion.
69. Who was the third author of the paper that introduced the idea of cohesion?
70. What is a coupling-to-cohesion ratio? Is it good for this ratio to be large or small?
71. What is the strongest and best kind of cohesion?
72. What is the optimum average length for a variable name? For a routine?
73. What is the theoretical maximum length of a routine?
74. What is the difference between a function and a routine?
75. Careful programmers generally use a macro instead of a routine only \_\_\_\_\_.

### Chapter 8: Defensive Programming

76. How is defensive programming like defensive driving?
77. Preconditions and postconditions are part of an approach to program design and development known as \_\_\_\_\_. What is a precondition? What is a postcondition?
78. Why is it a good idea to assert *and* handle the error? Why not just use one or the other?

79. What type of applications favor correctness to robustness? What type of applications favor robustness to correctness?
80. Which popular object-oriented language does not support try-catch-finally?
81. How do exceptions weaken encapsulation?
82. What is the danger of throwing an exception inside a constructor?
83. According to McConnell, what is one of the paradoxes of defensive programming?
84. When is it good to leave in debugging code that checks for potentially fatal errors? How was this helpful to the Mars Pathfinder team?