

Name: _____

CS370: Introduction to Digital Design

Instructor: B. Hemingway

Quiz #4 – Take home version

November 23, 2004

Due in class, Dec. 1

1. You are to develop a state diagram for a washing machine. The machine starts when a coin is deposited. It then sequences through the following stages: soak, wash, rinse, and spin. There is a “double wash” switch, which, if turned on, causes a second wash and rinse to occur. There is one external timer—you may assume that each stage should take the same amount of time. The timer begins ticking as soon as the coin is deposited, generates a T signal at the end of the time period, and then resets itself and starts again. If the lid is raised during the spin cycle, the machine stops spinning until the lid is closed. You may assume that the timer suspends ticking while the lid is raised.

a. (5 points) Identify your inputs and outputs

b. (5 points) Draw a state diagram that implements this finite state machine.

c. (5 points) Construct the state table for this finite state machine.

d. (15 points) Write your state machine in verilog (you may hand in a print out):