

University of California at Berkeley
 College of Engineering
 Department of Electrical Engineering and Computer Science

EECS 150
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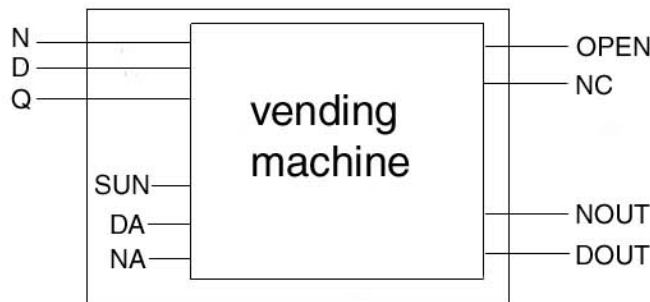
R. H. Katz

Homework Quiz # 6 (20 October)

Name: _____ **SID:** _____

Consider a newspaper vending machine from which papers are dispensed. The Monday through Saturday edition costs \$0.25 and the Sunday edition \$0.50. When the machine is loaded with papers, the delivery person turns a key that indicates whether it is a Sunday or not. The machine accepts one at a time nickels (\$0.05), dimes (\$0.10), and quarters (\$0.25), but only gives back one at a time nickels and dimes as change, and only if there are sufficient coins available. For example, if a customer puts three dimes into the machine on a Friday, she will get back a nickel only if there is a nickel in the internal coin reservoir. Otherwise a "Sorry No Change" light will illuminate. The machine unlocks to allow access to the paper when enough money has been entered and as much change as possible has been given back.

(a) Draw a block diagram indicating your inputs and outputs and BRIEFLY describe their function.



N - nickel inserted
 D - dime inserted
 Q - quarter inserted
 SUN - high if SUNDAY
 DA - high if at least one dime is available for change
 NA - high if at least one nickel is available for change

OPEN - unlocks door
 NC - not enough change
 NOUT - gives a nickel
 DOUT - gives a dime

(b) On the back of this sheet, draw a MEALY MACHINE state diagram that describes the vending machine Finite State Machine.

