



a place of mind

Electrical and Computer Engineering

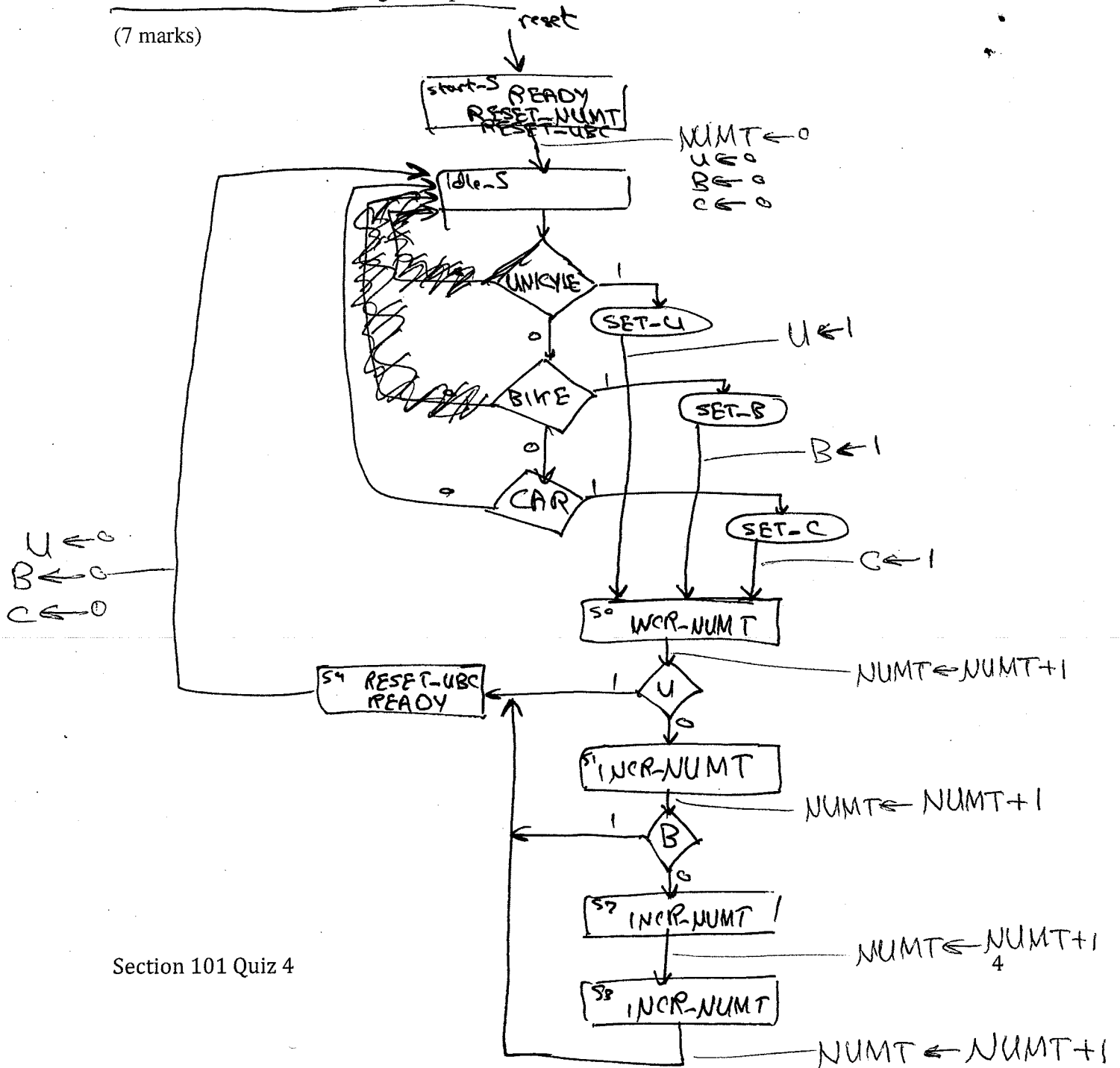
Nov 23, 2010

Draw the ASMD chart for a circuit which counts the total number of tires which have passed. The circuit has three inputs: CAR (4 tires), BIKE (2 tires), and UNICYCLE (1 tire), as well as an asynchronous reset. Input is only available to the circuit for one clock cycle.

Datapath consists of a single counter (NUMT), and three flip flops which indicate whether the circuit is currently counting a Car (C), Bike (B), or Unicycle (U).

The controller must generate the signals INCR_NUMT, SET_C, SET_B, SET_U, RESET_UBC, RESET_NUMT, and READY, which indicates that the circuit is ready to receive another input. Status signals available to the controller are the values of the flip-flops C, B, and U. Use as few states as possible. Specify in your ASMD both the control signals to the datapath as well as the RTL commands that those signals represent.

(7 marks)





a place of mind

Electrical and Computer Engineering

Nov 26, 2010

Draw the ASMD chart for a circuit which counts the total number of tires which have passed. The circuit has three inputs: TRI (3 tires), BIKE (2 tires), and UNI (1 tire), as well as an asynchronous reset. Input is only available to the circuit for one clock cycle.

Datapath consists of a single counter (NUMT), and three flip flops which indicate whether the circuit is currently counting a Tricycle (T), Bike (B), or Unicycle (U).

The controller must generate the signals INCR_NUMT, SET_T, SET_B, SET_U, RESET_TBU, and READY, which indicates that the circuit is ready to receive another input. Status signals available to the controller are the values of the flip-flops T, B, and U. Use as few states as possible. Specify in your ASMD both the control signals to the datapath as well as the RTL commands that those signals represent.

(7 marks)

