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Date: 25/11/2016

BLG231E Digital Circuits Quiz 2

Duration: 20 Minutes

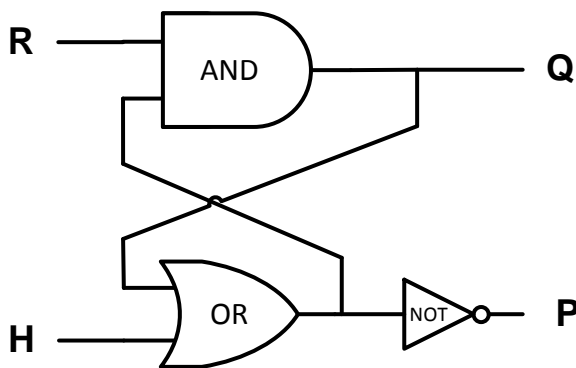
Grading: 1a) 50%, 1b) 50%,

Quiz is in closed-notes and closed-books format

For your answers please use the space provided in the exam sheet

GOOD LUCK!

1. Consider a sequential circuit shown below.



- a) An expected operation of the circuit is having complemented logic values for **Q** and **P** outputs. Determine the restrictions on **R** and **H** so that P equals to Q. Fill in the truth table below with indicating the **bad conditions** or restricted cases

R	H	Q-pre	Q
0	0	0	
0	0	1	
0	1	0	
0	1	1	
1	0	0	
1	0	1	
1	1	0	
1	1	1	

- b) Suppose that the inverter has a delay of **1ns**; the AND gates has a delay of **2ns**; and the OR gate has a delay of **5ns** . Sketch the **waveforms at the outputs Q and P** if the input signals R and H shown below are applied. Suppose that initial values of Q and P are logic 0 and 1, respectively.

