

ECE 5130
Group Assignment for Extra 5% - Due on 12/12/24

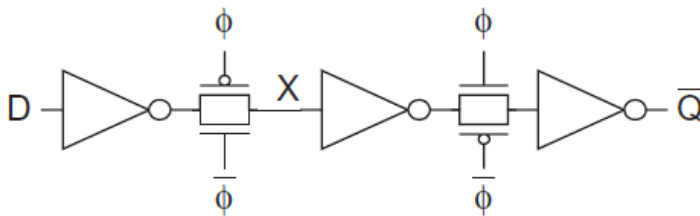
Question 1) Analyze the two FF below and explain the functionality of the circuit using waveforms (paper and pencil) with signals including D, X, Clock, Clock_bar, and Q' for the second circuit (b) show both Q and Q'.

Question 2) Implement this circuit on the Cadence's software and show that functionality is correctly verified.

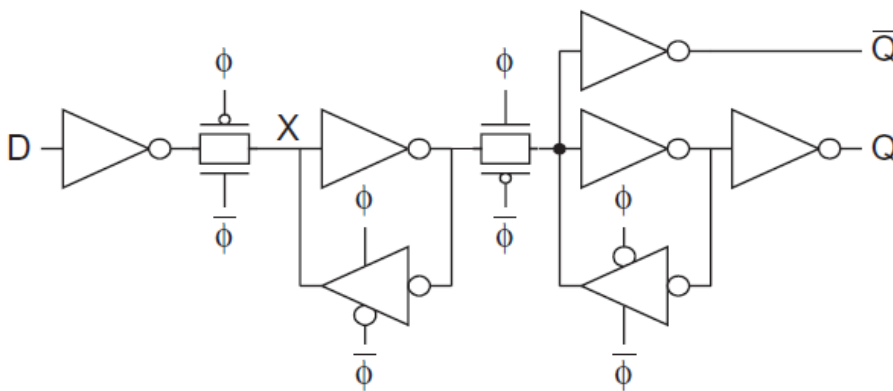
Question 3) Find out synchronous timing parameters such as propagation delay (Clock to Q), setup and hold time – using simulation only. Explain your steps and the conclusion that you reached.

Question 4) Find out the condition in which the first circuit (a) may fail due to overlapping clocks.

Deliverables: In one consolidated pdf files (all typed and no hand drawn figures) provide answers to all the questions above. You also required to provide appropriate figures, schematic, and waveform results from the simulation. Full credit will only be provided if sufficient details of the experiments are provided in the pdf document.



(a)



(b)