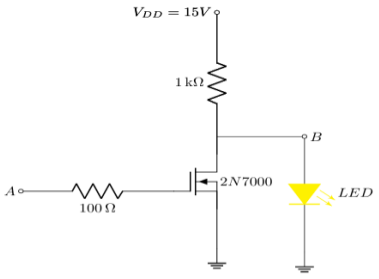
Name: __Zain Akhtar__ EE-272L Digital Systems Design

Reg. No.: ____2023-EE-63____ Marks Obtained: _____

Lab Manual

DSD Lab Manual Evaluation Rubrics

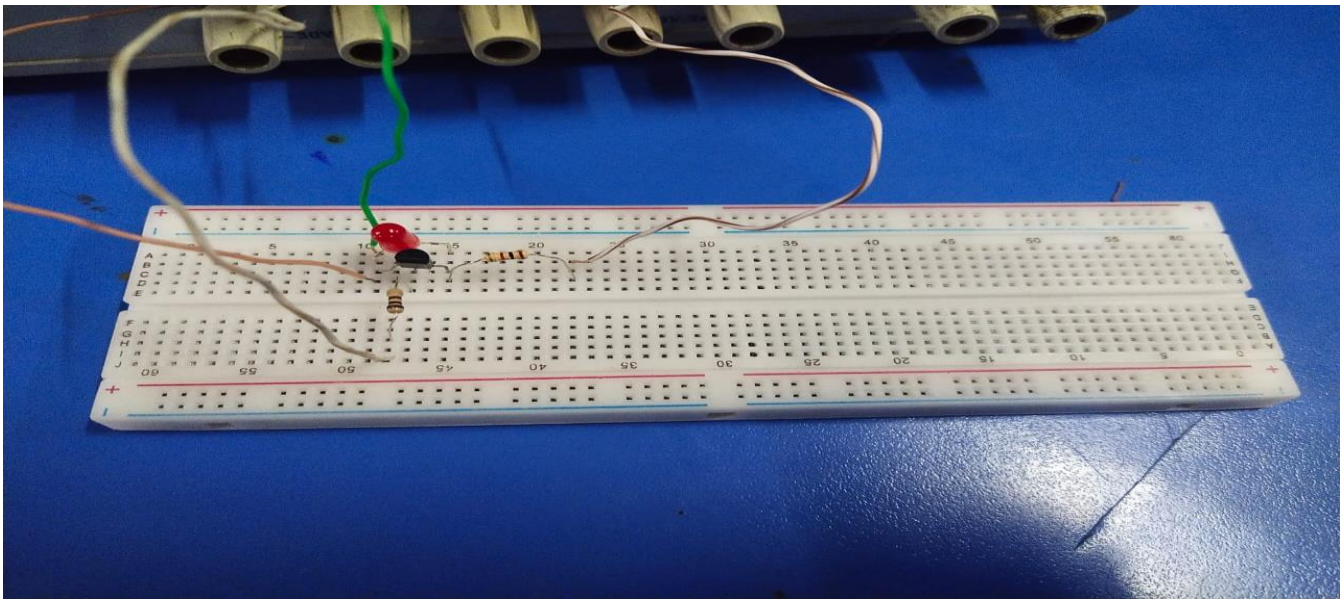
Assessment	Total Marks	Marks Obtained	0-30%	30-60%	70-100%
Code Organization (CLO1)	3		No Proper Indentation and descriptive naming, no code organization. Zero to Some understanding but not working	Proper Indentation or descriptive naming or code organization. Mild to Complete understanding but not working	Proper Indentation and descriptive naming, code organization. Complete understanding, and proper working
Simulation (CLO2)	5		Simulation not done or incorrect, without any understanding of waveforms	Working simulation with errors, don't cares's(x) and high impedance(z), partial understanding of waveforms	Working simulation without any errors, etc and complete understanding of waveforms
FPGA (CLO2)	2		Not implemented on FPGA and questions related to synthesis and implementation not answered.	Correctly Implemented on FPGA or questions related to synthesis and implementation answered.	Correctly Implemented on FPGA and questions related to synthesis and implementation answered.

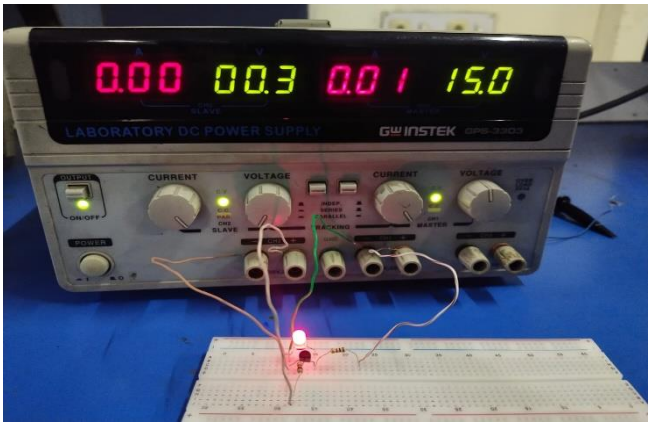


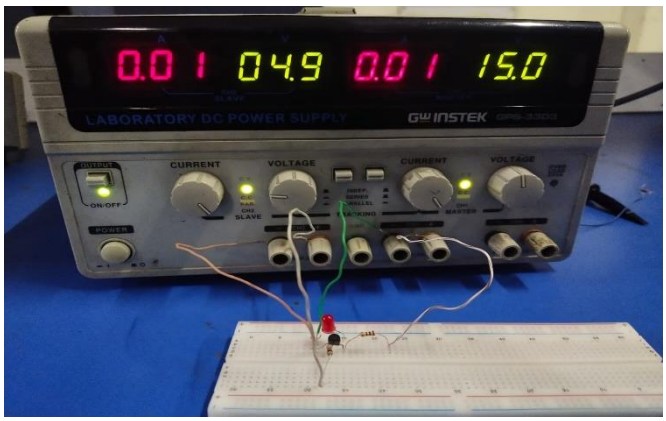
(b) Transistor in a NOT gate circuit using 2N7000

TASKS:

- When 5V is applied at terminal A, the voltage at terminal B is **0.05V** and the **LED does not glow.**
- When 0V is applied at terminal A, the voltage at terminal B is **1.99V** and the **LED glows.**

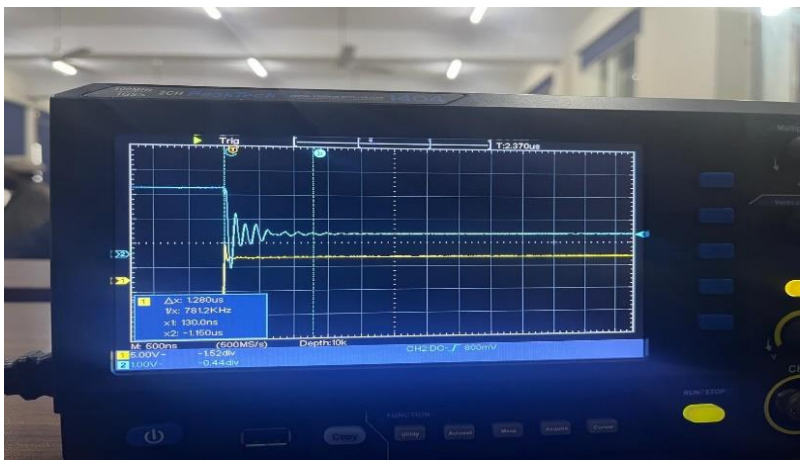






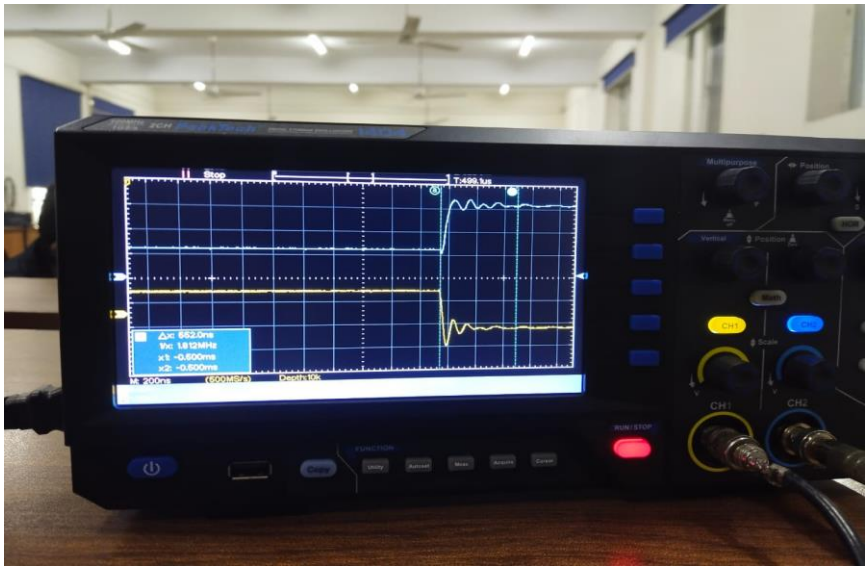
- We apply a 1 kHz, 10V (peak-to-peak) voltage square wave at terminal A using the signal generator. When the input goes from low voltage to high voltage then the

Propogation delay is 1.280µs.



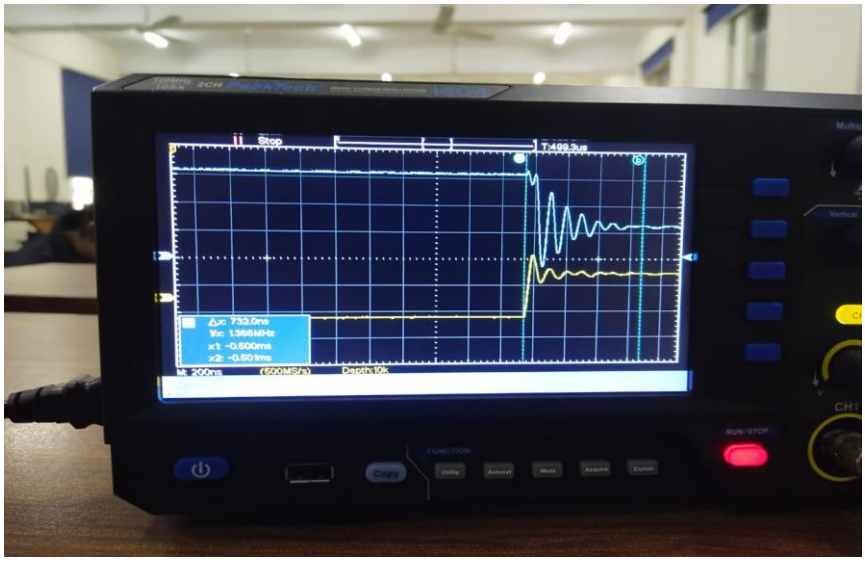
- When the input goes from high voltage to low voltage then the

  Propogation delay is 552ns.



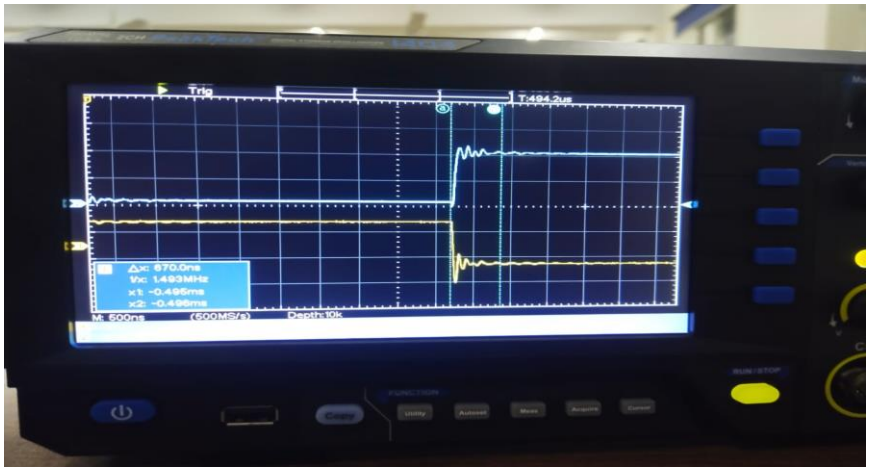
- We apply a 100kHz, 10V (peak-to-peak) voltage square wave at terminal A using the signal generator. When the input goes from low voltage to high voltage then the

  Propogation delay is 732ns.



- When the input goes from high voltage to low voltage then the

  Propogation delay is 552ns.



- As we increases the frequency our signal become distorted.