CSE350

Digital Electronics and Pulse Techniques

Lab Report

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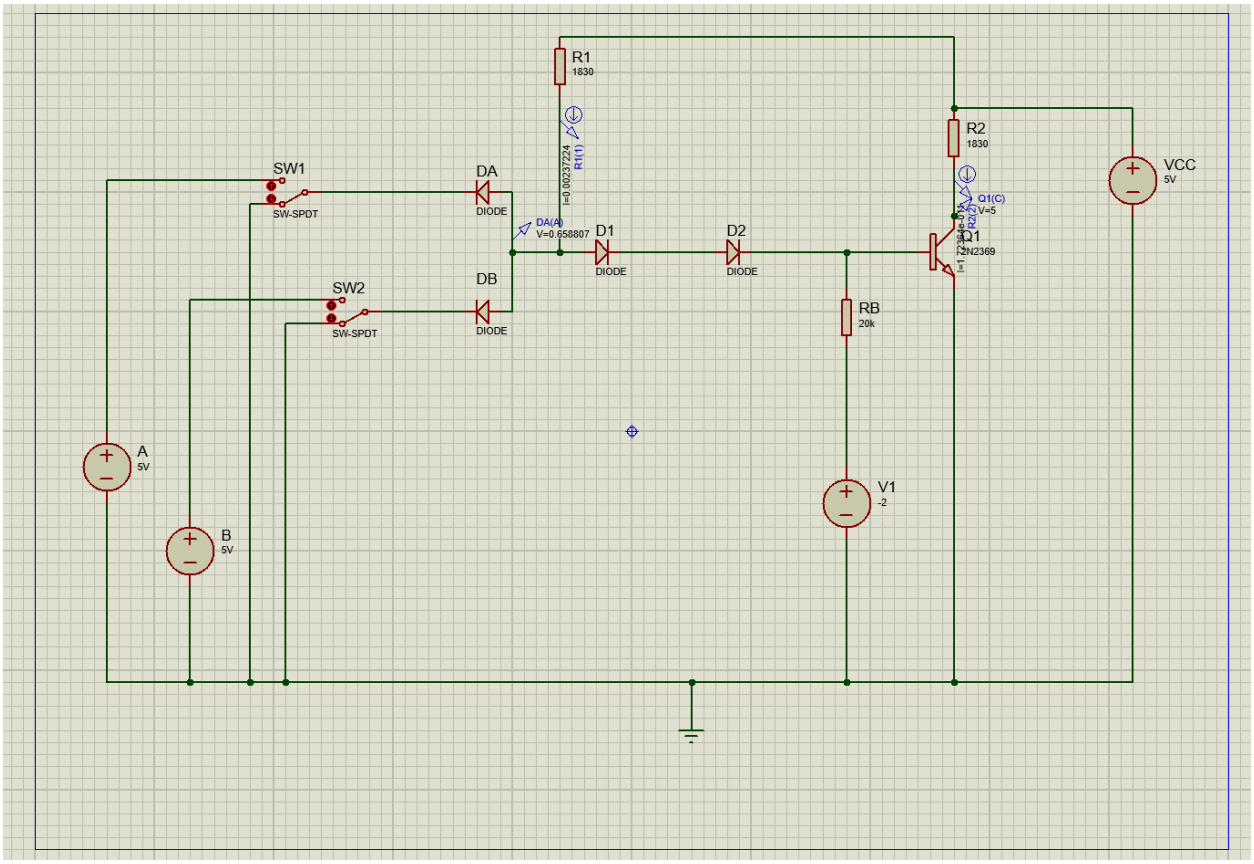
Section: CSE5

Submission Date: 10/7/21


R1
1830
I=0.00237224
R1(1)
R2
1830
VCC
5V
SW1
SW-SPDT
DA
DIODE
DA(A)
V=0.658807
D1
DIODE
D2
DIODE
Q1(C)
V=5
Q1
2N2369
SW2
SW-SPDT
DB
DIODE
RB
20k
A
5V
B
5V
V1
-2

Input A	Input B	V_{DA}	V_{DB}	V_p	IR_1	IR_2	V_b	Output Y
0	0	0.658	0.658	0.658	0.00237	2.2×10^{-9}	-0.5168	5
0	1	0.676	-4.434	0.676	0.00236	2.22×10^{-11}	-0.4999	5
1	0	-4.434	0.676	0.676	0.00236	2.22×10^{-4}	-0.4999	5
1	1	-2.762	-2.762	2.156	0.00155	0.00267	0.8235	0.0991

Input A	Input B	V_p	V_b	Output Y
1	0	0.676	-0.499	5
1	1	2.156	0.8235	0.0991

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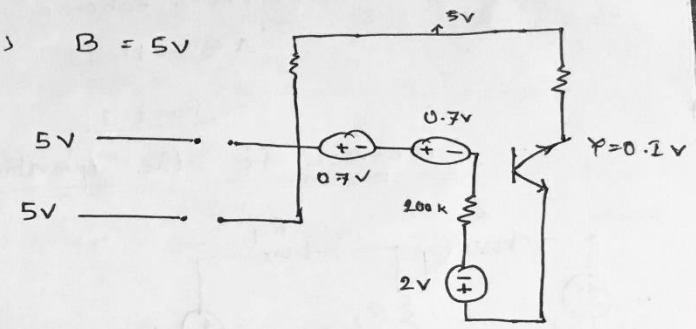
Answer to the question Number – 1

Input A = 5V , B = 5V

Circuit :



Answer to the question Number – 2

Input A	Input B	Output Y
1	0	5
1	1	0.1

Input 1 is connected to +5V as constant and another value is variable means changed / changable.

By keeping input A = 5V constant and changing Input B to 0 and 1 the circuit act as Inverter or Not gate.

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Answer to the question number - 3

Considering A = 0V, B = 5V diode DB is off and diode BA is on. $V_p \approx 0.7$ As a result transistor is cut off and Y = 5V.

Again, when the input A=5V, B = 0V the diode is in forward bias and ON. So, diode DA is is Reverse bias and OFF. So, $V_p = 0.7$ and transistor will be cut off and Y = 5V.

Answer to the question number - 04

Input A = 5V, B = 0V then $V_p = 0.7V$ and V_p should be minimum 2.1V and turned ON.

$V_p = 0.7$ and $V_b = -0.49$ V that means the biase voltage of transistor 1, -0.49V which is less than 0.5V. that is why it is turned ON.

$V_D = -0.499V < 0.5V$ thus transistor will be in Cutoff mode.

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Answer to the question no-5

Input A	Input B	output Y
0V	0V	5V
0V	1V	5V
1V	0V	5V