ECEN 325 – Electronics

Fall 2020

Lab 6: Prelab

Submitted by:

Student Name	UIN:	Section #
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Due: October 6th, 2020

1.)

Vd+   **D1**   **Vd-**

1N4148

Vi

1V

R1

1kΩ
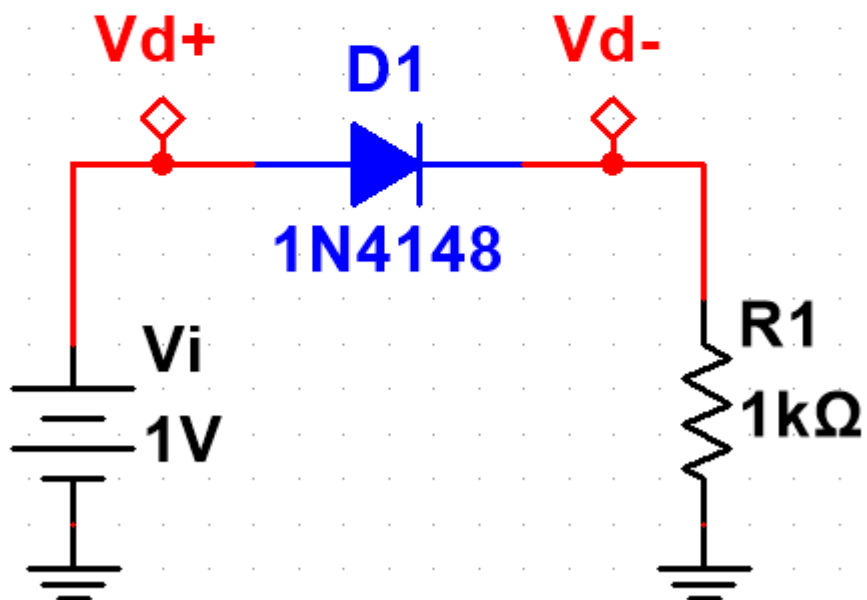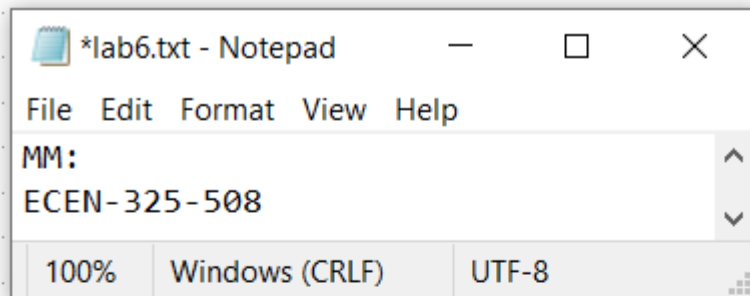
VD (V)	ID (mA)
-1	-1.1E-09
-0.9	-1E-09
-0.8	-9E-10
-0.7	-8E-10
-0.6	-7E-10
-0.5	-6E-10
-0.4	-5E-10
-0.3	-4E-10
-0.2	-3E-10
-0.1	-2E-10
-1.4E-16	-6.7E-25
0.1	4.78E-09
0.2	2.28E-07
0.3	1.09E-05
0.4	0.00051
0.5	0.014304
0.6	0.072298
0.7	0.152857
0.8	0.241028
0.9	0.33242
1	0.425854

Fig-2a plot
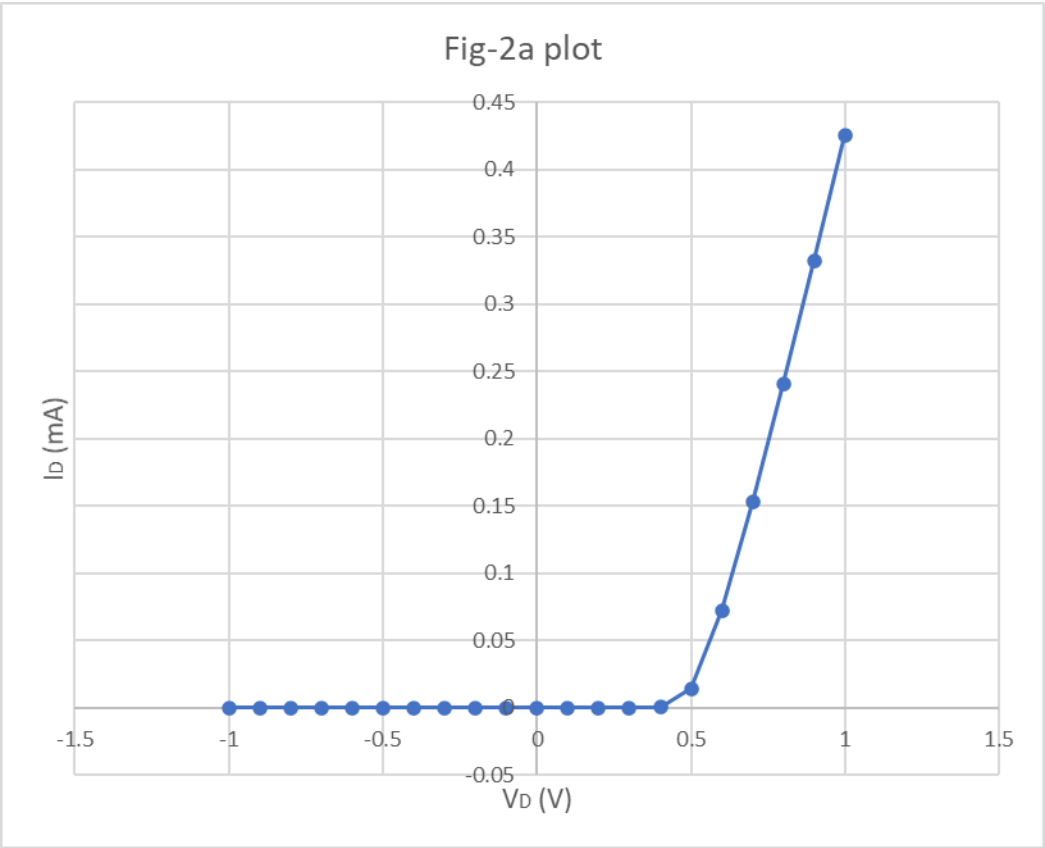
2.)

$$R_L = \frac{V_o}{I_{o,max}} \qquad C = \frac{1}{2f_i R_L K_r} \qquad \hat{V}_s \approx V_o + 0.7$$

$$\boxed{I_{o,max} = 3mA} \qquad \boxed{V_o = 3V} \qquad \boxed{f_i = 250\ Hz}$$

$$\boxed{R_L = \frac{3}{3m} = 1k\Omega} \qquad K_r = 0.1 \qquad C = \frac{1}{2(250)(1k)0.1} = 20\mu F$$

$$\boxed{C = 20\mu F} \qquad V_s = 3 + 0.7 = 3.7$$

$$\boxed{V_s = 3.7\sin(500\pi t)\ V}$$

$$\boxed{-V_s = -3.7\sin(500\pi t)\ V}$$

D1
1N4006G

Vs
2.616Vrms
250Hz
0°

D2
1N4006G

negVs
2.616Vrms
250Hz
0°

C
20uF

RL
1kΩ

*lab6.txt - Notepad

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MM:
ECEN-325-508

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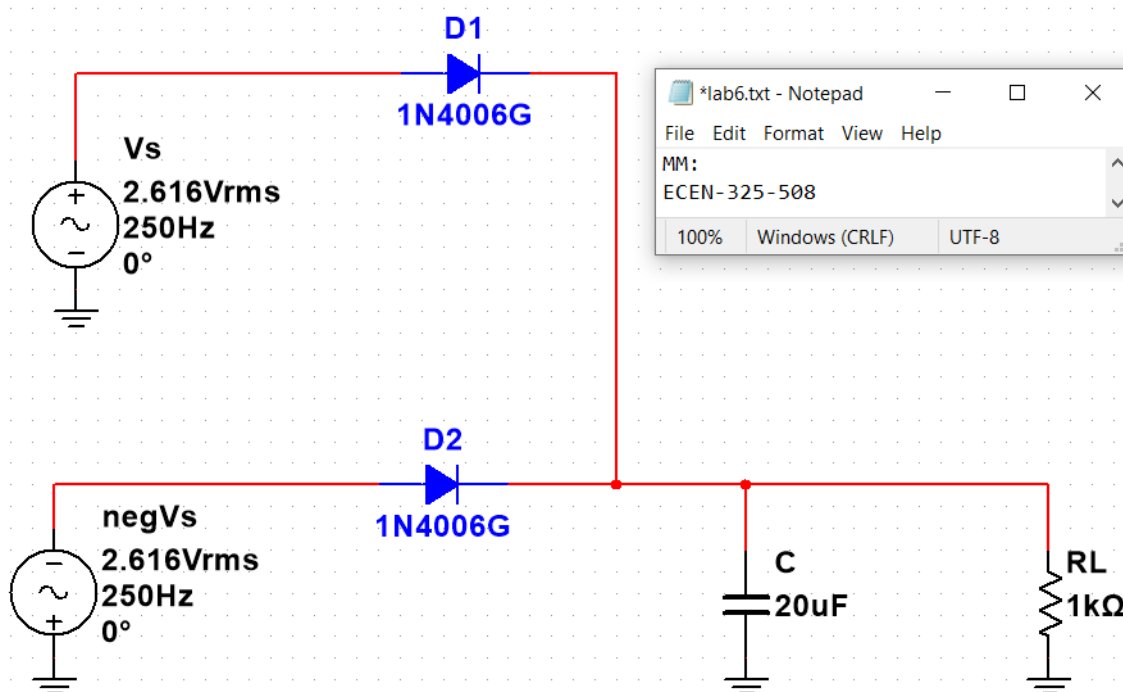
Circuit (fig-5) breadboard