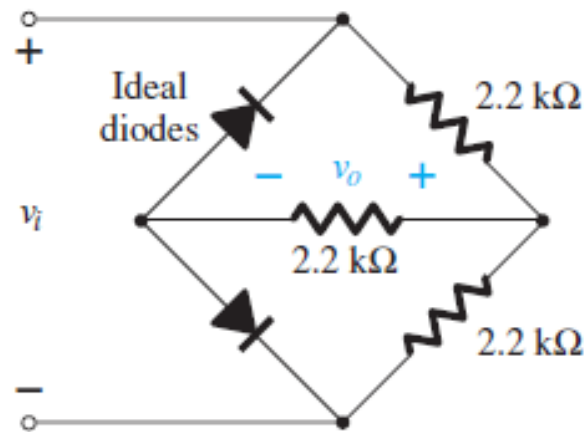
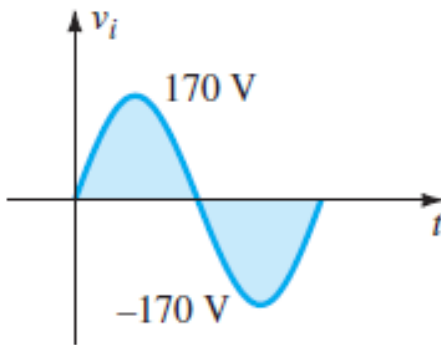


# ASSIGNMENT-9

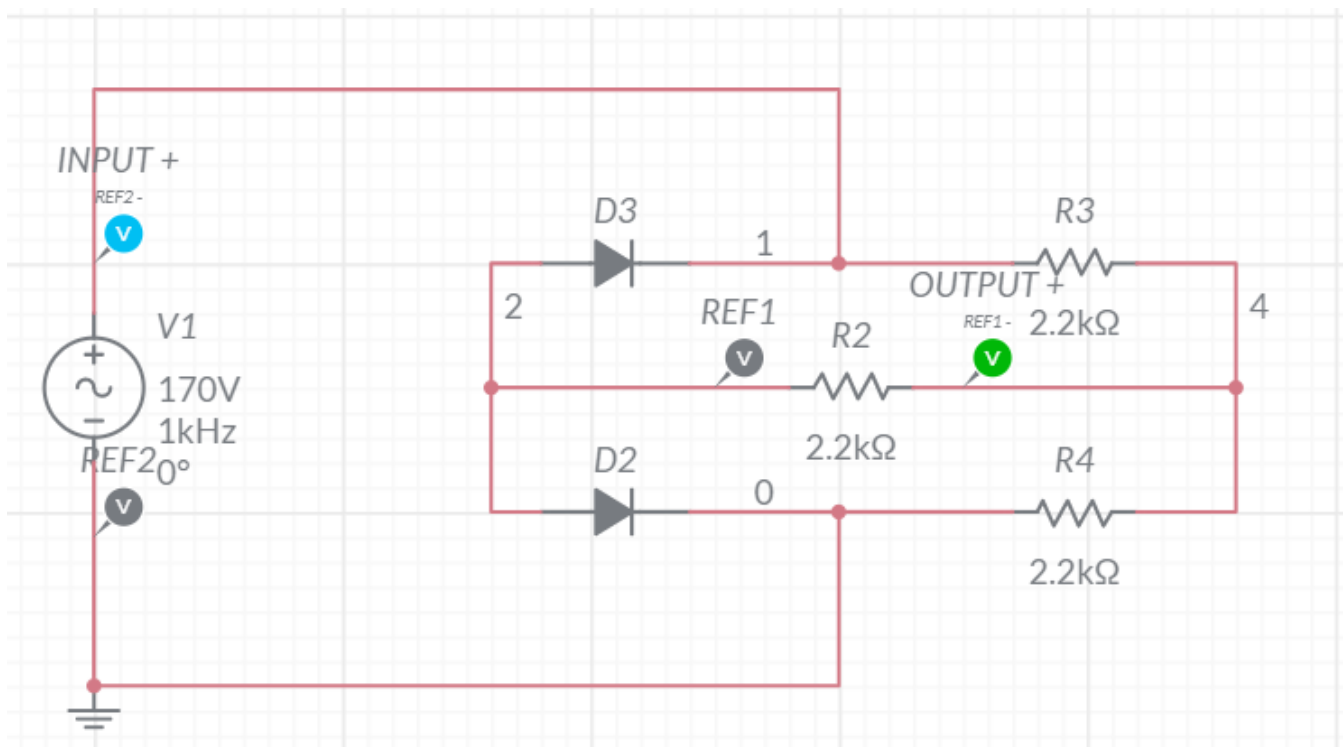
U19CS012

1. Calculate and Plot  $V_o$  for the following circuit.

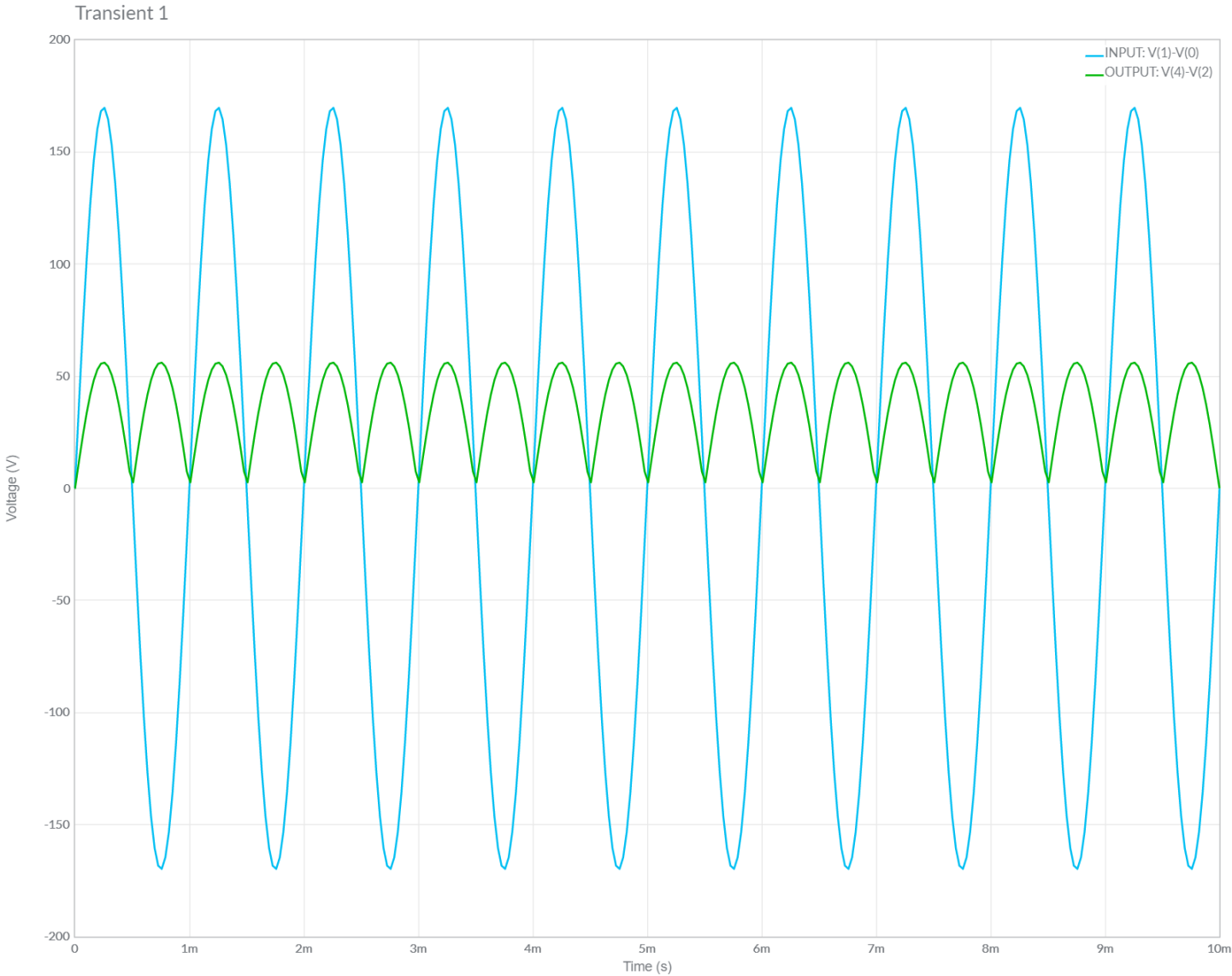


A.) Multisim Calculations:

1.) Circuit Image:



2.) Grapher Image:



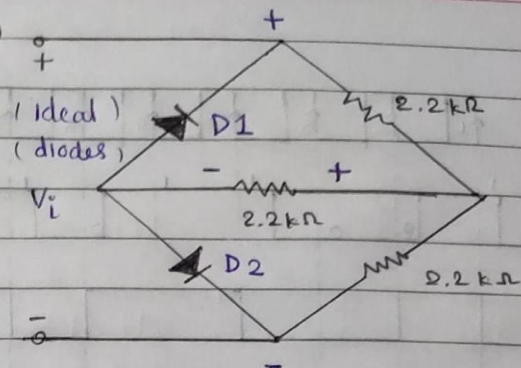
## B.) Calculation Part

Q2.7

170V

-170V

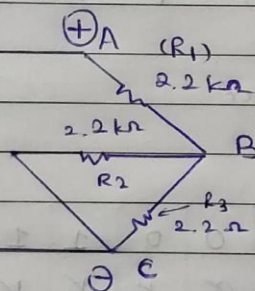
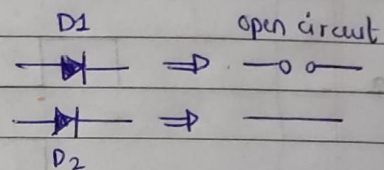
(U19C5012)



(A) During Positive half cycle

D1 will be Reverse biased

D2 will be short circuit  
(forward Biased)



$$R_{\text{equivalent}} = R_1 + (R_2 \parallel R_3)$$

$$= 2.2 \text{ k}\Omega + \frac{1}{\left(\frac{1}{2.2} + \frac{1}{2.2}\right)}$$

$$= [3.3 \text{ k}\Omega]$$

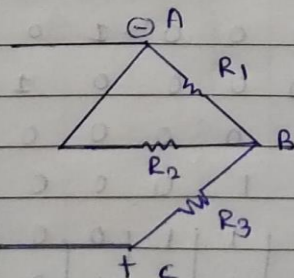
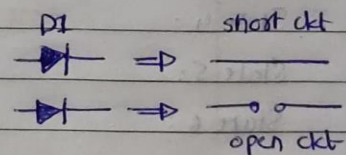
$$i = \frac{V}{R_{\text{eq}}} = \frac{170}{(3.3 \text{ k}\Omega)}$$

Ans:  $V_{R_2} = (V) \times \frac{(1.1)}{(1.1 + 2.2)} \text{ k}\Omega = 170 \times \frac{1}{3} = \frac{170 \text{ V}}{3}$

(B) During Negative half cycle

D1 will be forward biased

D2 will be reverse biased



$$R_{\text{eq}} = R_3 + (R_1 \parallel R_2) = (2.2 + 1.1) \text{ k}\Omega = 3.3 \text{ k}\Omega$$

$$V_{R_2} = (V) \times \frac{(R_1 \parallel R_2)}{(R_3 + (R_1 \parallel R_2))} = 170 \times \frac{1.1}{(1.1 + 2.2)}$$

Ans:  $V_{R_2} = \frac{170 \text{ V}}{3}$