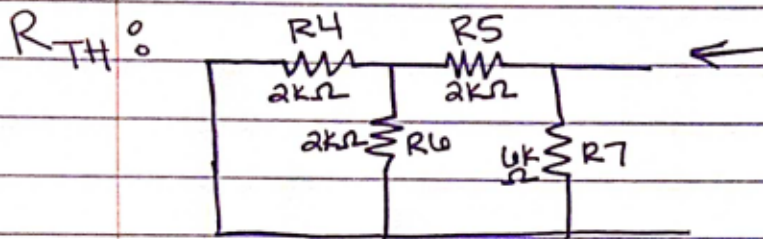
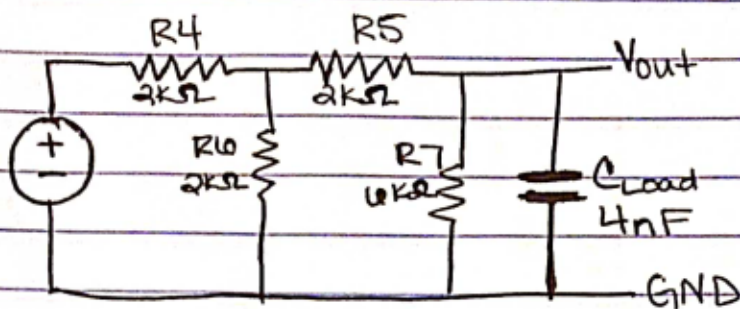


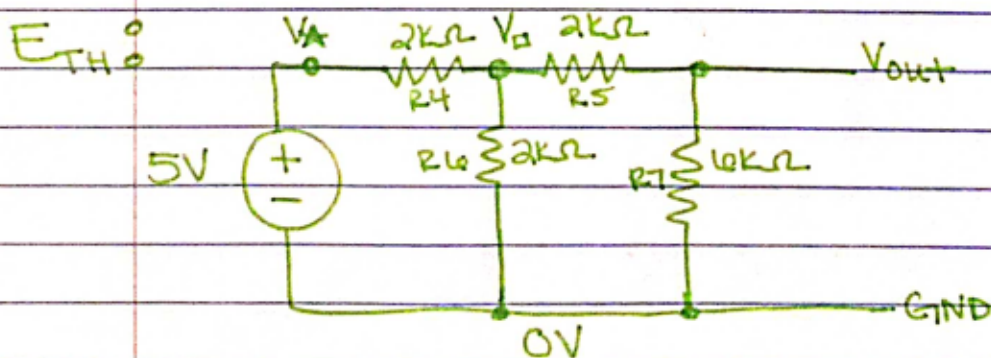
Task 2:



$$R_{TH} = R7 \parallel (R5 + (R4 \parallel R6)) = 2k\Omega$$

$$= \frac{6k(2k + 1k)\Omega}{6k + (2k + 1k)\Omega} = \frac{6(3)k\Omega}{9k\Omega} = \frac{18k\Omega}{9k\Omega}$$

$$R4 \parallel R6 = \frac{4k\Omega}{4k\Omega} = 1k\Omega$$



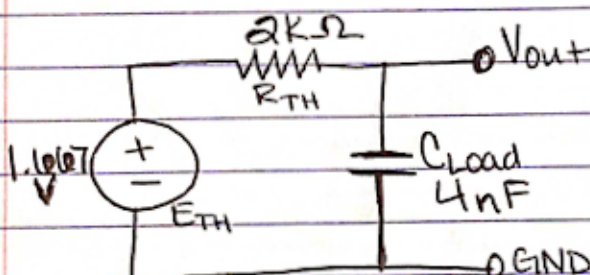
$$V_* = 5V - 0V = 5V$$

$$V_B = 5V \left(\frac{1.6k\Omega}{3.6k\Omega} \right) = 2.222V$$

$$V_{out} = 2.222V \left(\frac{6k\Omega}{8k\Omega} \right) = 1.667V$$

$$R6 \parallel (R5 + R7) = 1.6k\Omega$$

$$\frac{R6(8k\Omega)}{R6 + 8k\Omega} = \frac{11k\Omega}{10k\Omega}$$



$$\text{Time Delay: } R_{TH} (C_{load}) (0.7RC)$$

$$= (2k\Omega)(4nF)(0.7RC)$$

$$= 5.6 \text{ microseconds}$$