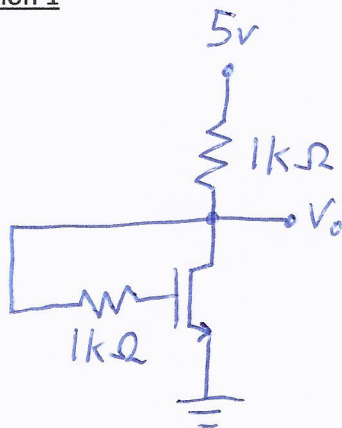
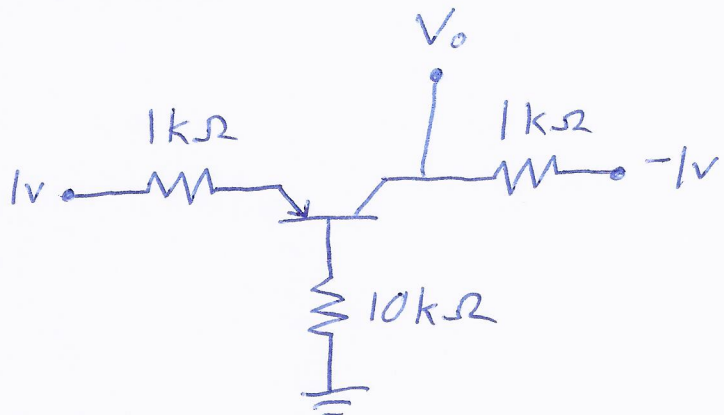
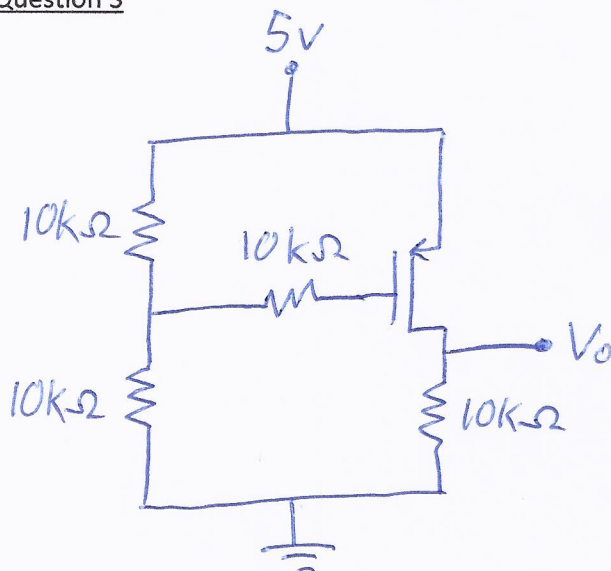


Don't Forget:

- Be sure to include units for all numerical results
- Use standard engineering notation, i.e. report  $1.5\mu\text{V}$ , *not*  $0.0000015\text{V}$
- For all BJTs, assume  $\beta=100$ , and  $V_A=\infty$
- For all N-channel FETs, assume  $k_n'(W/L)=\mu_n C_{ox}(W/L)=1\text{ mA/V}^2$ , and  $V_{Tn}=1\text{V}$ , and  $\lambda=0$
- For all P-channel FETs, assume  $k_p'(W/L)=\mu_p C_{ox}(W/L)=1\text{ mA/V}^2$ , and  $V_{Tp}=-1\text{V}$ , and  $\lambda=0$

For all questions, complete both parts below:

1. Find and verify the state of *each* transistor:
  - cut-off, active, or saturation for BJTs
  - cut-off, saturation, or triode for FETs
2. Find the voltage  $V_0$

Question 1Question 2Question 3Question 4