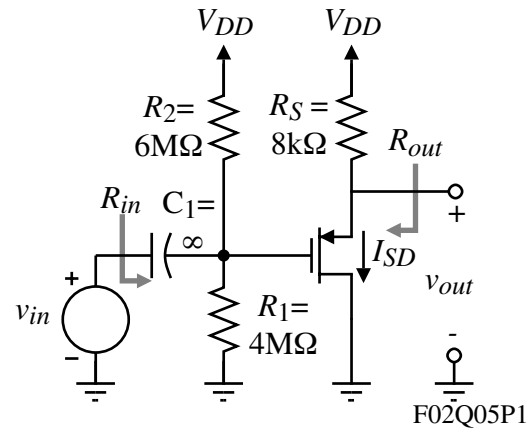


**Homework Assignment No. 6**Due on Monday, February 16, 2004

Problems in first edition are indicated in ( ).

- 1.) A PMOS common-drain amplifier is shown. Assume the parameters of the transistor are  $k_F = 0.5\text{mA/V}^2$ ,  $V_{TP} = -1\text{V}$ , and  $\lambda = 0$ . (a.) If  $I_{SD} = 0.5\text{mA}$ , find the small signal model parameter values for  $g_m$  and  $r_o$ . (b.) Find an algebraic expression for the small signal input resistance,  $R_{in}$ , the output resistance,  $R_{out}$ , and the voltage gain,  $v_{out}/v_{in}$ . (c.) Numerically evaluate the small signal input resistance,  $R_{in}$ , the output resistance,  $R_{out}$ , and the voltage gain,  $v_{out}/v_{in}$ .



- 2.) Problem 14.16 (no equivalent problem in first ed.) of the text.  
 3.) Problem 14.19 (14.15) of the text.  
 4.) Problem 14.27 (14.21) of the text.  
 5.) Problem 14.28 (14.23) of the text