Problem 9

Consider the common source amplifier shown below. Assume NMOS transistor has the following parameters: $KP=60 {μA}/{V^{2}}$, $L=5 μm$, $W=100 μm$, $r\_{d}=\infty $, and $V\_{to}=1.5 V$ .

1. Find the values of $I\_{DQ}$, $V\_{DSQ}$and $g\_{m}$.
2. Assuming that the coupling capacitors are short circuits for the ac signal, determine the following: voltage gain, input resistance and output resistance.

 