E E 311

1.   An NMOS transistor has a threshold voltage, $V_t = 0.5V$ and $k_n'\frac{W}{L} = 0.1\ mA/V^2$.

   a)   Determine the required value of V_{GS} for the device to operate in saturation
        with a drain current $I_D = 0.2mA$.

$$V_{GS} = \underline{\hspace{2cm}}$$ (5pts)

   b)   Determine the minimum allowable value of V_{DS} for the device to remain in
        saturation and the corresponding value of the gate to drain voltage, V_{GD}.

$$V_{DS_{min}} = \underline{\hspace{2cm}}$$ (3pts)

$$V_{GD} = \underline{\hspace{2cm}}$$ (2pts)