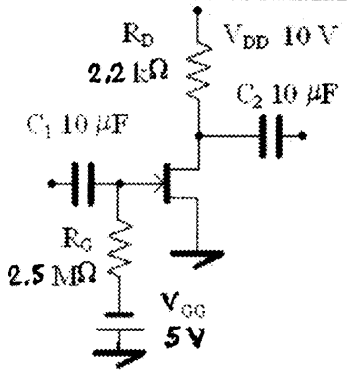
Baskent University, Faculty of Engineering
BME 222-01 – Electronics (Spring Semester 2004/2005)
Quiz 3 – May 16, 2005

Student Name_____

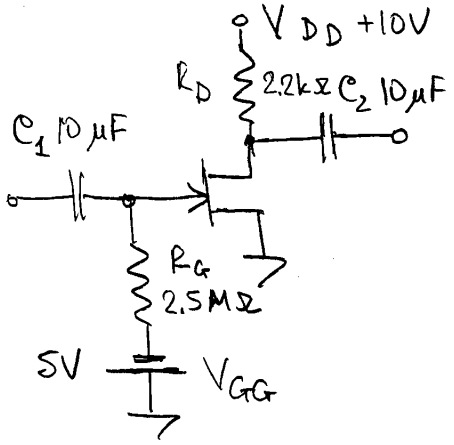
Faculty No: _____



The **JFET** of Figure has values of V_P **= - 8 V** and I_{DSS} **= 16 mA**. Determine the values of V_{GS}, I_{DQ} and V_{DSQ} for the circuit. **Hint:** Use analytical method.

5 points.

Good Luck!



The JFET in Figure has values of $V_p = -8V$ and $I_{DSS} = 16mA$. Determine the values of V_{GS}, I_{DQ} and V_{DSQ} for the circuit.

Hint: use analytical method

Solution:

1. Since none of V_{GG} is dropped across the gate resistor R_G, V_{GS} is found as

$$V_{GS} = -V_{GG} = -5V$$

2. Using this value of V_{GS} and the parameters listed above, the value of I_D is found as

$$I_{DQ} = I_{DSS}\left(1 - \frac{V_{GS}}{V_p}\right)^2 = 16 \cdot 10^{-3}\left(1 - \frac{-5}{-8}\right)^2 = 2.25 \cdot 10^{-3} = 2.25mA$$

3. Now, the value of V_{DS} is found as

$$V_{DSQ} = V_{DD} - I_{DQ}R_D = 10 - 2.25 \cdot 10^{-3} \cdot 2.2 \cdot 10^{3} = 5,05\ V$$