1. Using the data obtained from the Keysight transistor curve tracer calculate the parameters $\beta, V_{TO},$ and $\lambda$ for the N Channel JFET.

2. Design the Common Source Amplifier circuit shown below so that $I_D = I_{DSS}/2$. Use $C_1 = 10 \mu F, C_2 = 22 \mu F,$ and $C_S = 100 \mu F$. The dc power supply is $V^+ = 15 V$ and $V^- = -15 V$. The load resistor $R_L = 20 k\Omega, V_D = 5 V, V_S = -5 V,$ and the small signal midband input impedance is $80 k\Omega$. Design the circuit for maximum small signal midband voltage gain.

3. Perform a SPICE simulation of the Common Source Amplifier to obtain the dc operating point, the frequency response (AC analysis), and the Clipping behavior.