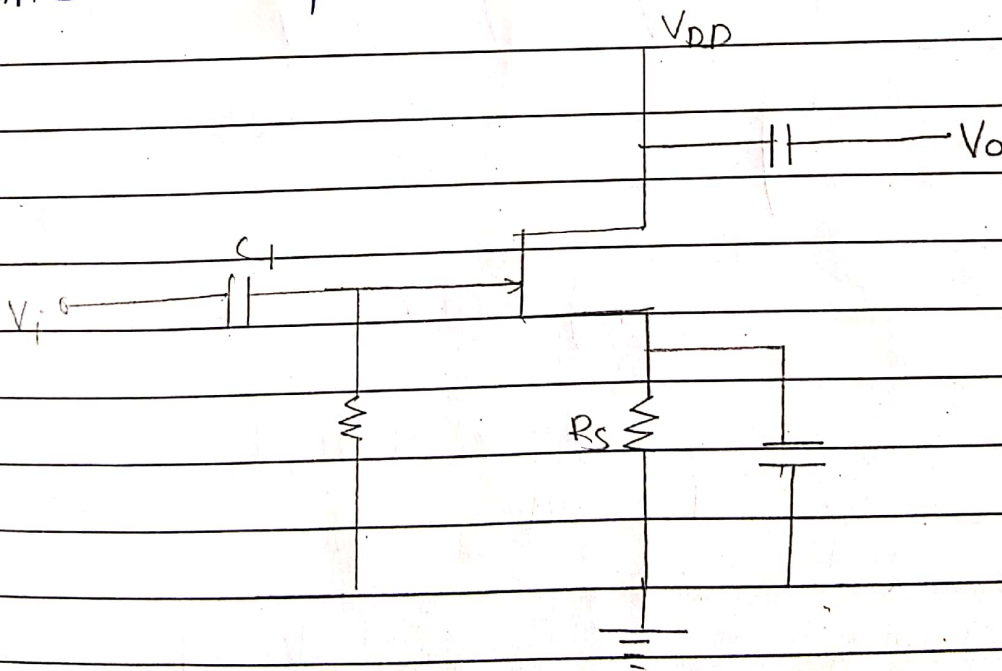
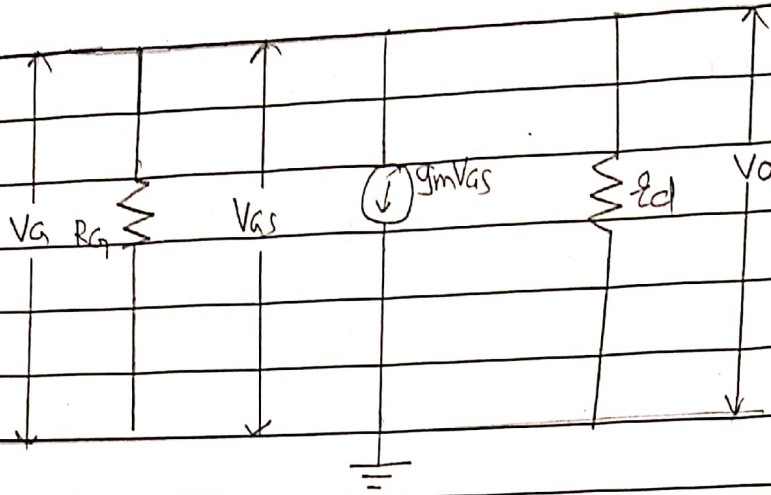


Q.10] Draw the AC equivalent of amplifier shown.  
Comment on the type of amplifier and type of bias.  
Derive the expressions for input impedance, output impedance and voltage gain.

→ The type is Common Source JFET.  
The biasing is Self-Bias.  
The AC equivalent circuit is





Input Impedance :-  $Z_o = R_g$

Output Impedance  $Z_o = r_d$

Voltage gain:

$$A_v = \frac{V_o}{V_i} = \frac{-g_m V_{gs} \times r_d}{V_{gs}}$$

$$A_v = -g_m r_d$$