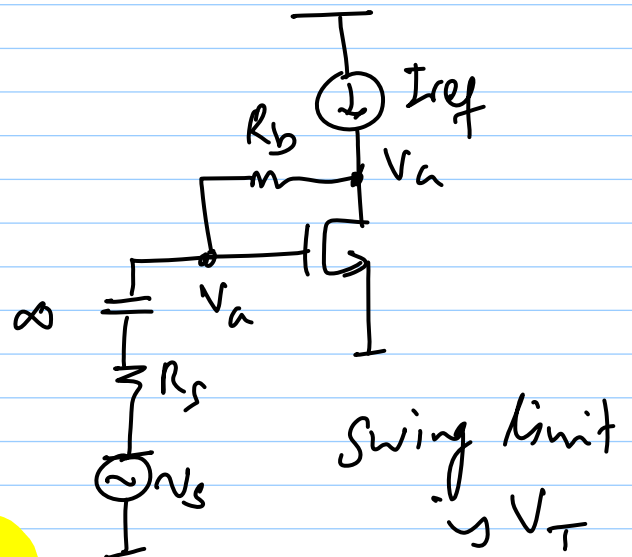
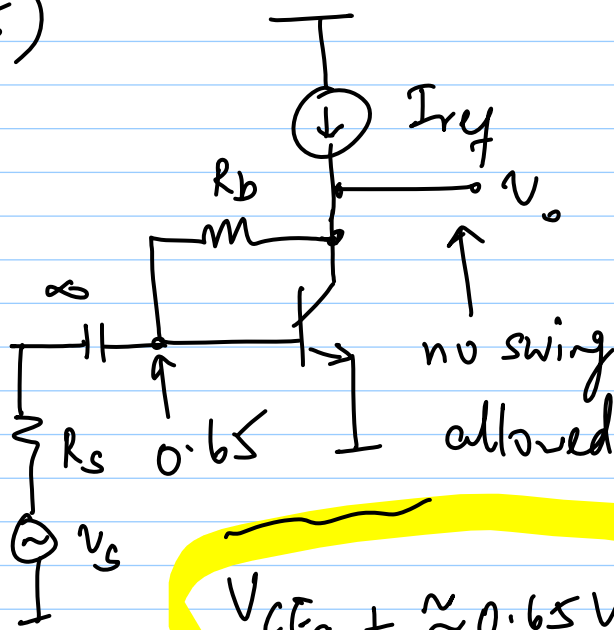


15-11-12

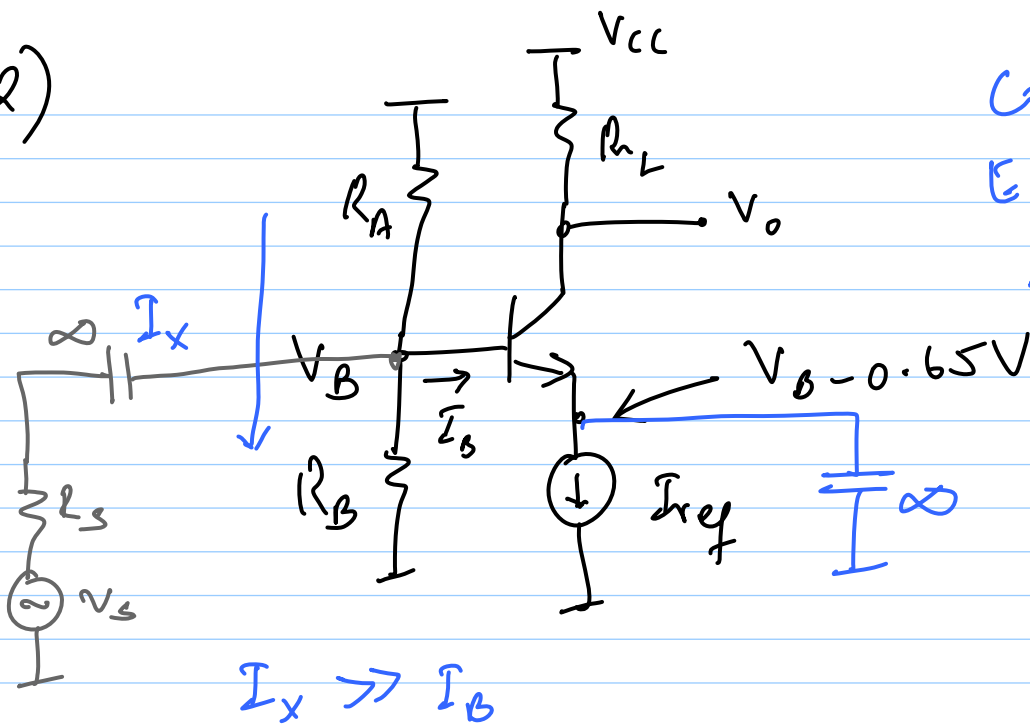
Lec 47

1.5)



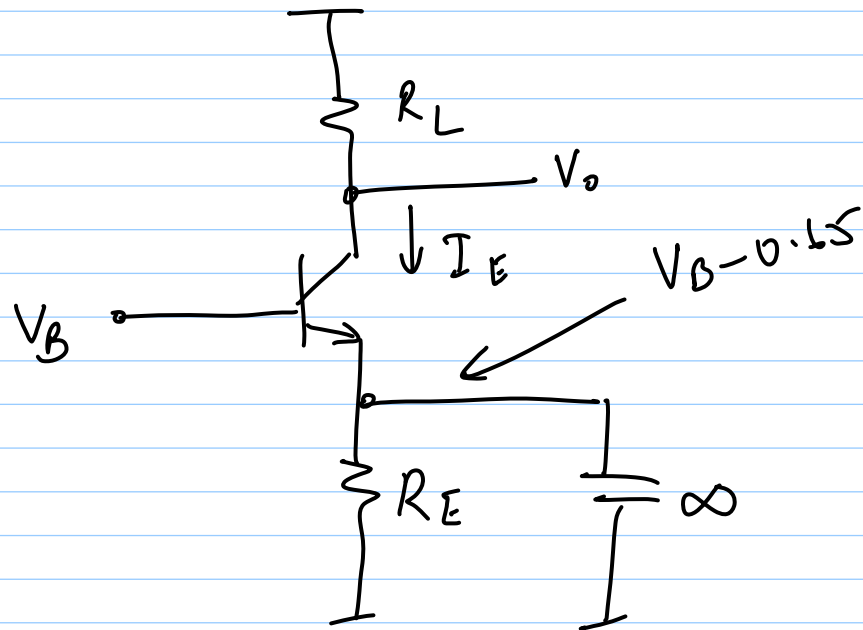
$$V_{O,Q} \approx 0.65 \text{ if } \beta \rightarrow \infty$$

2)



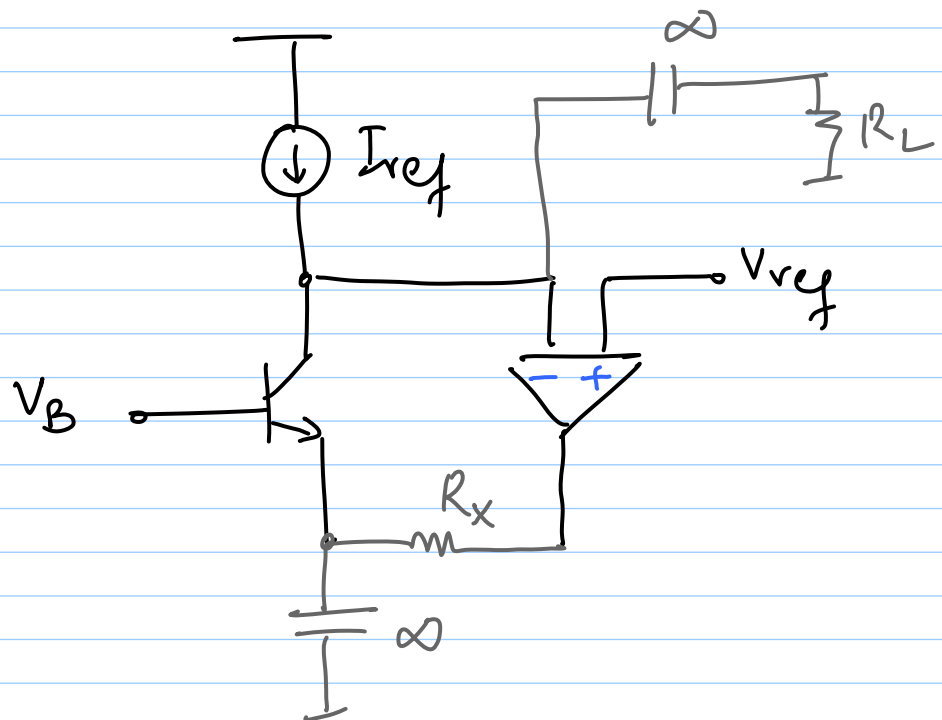
Common
Emitter
Amplifiers

2.5)



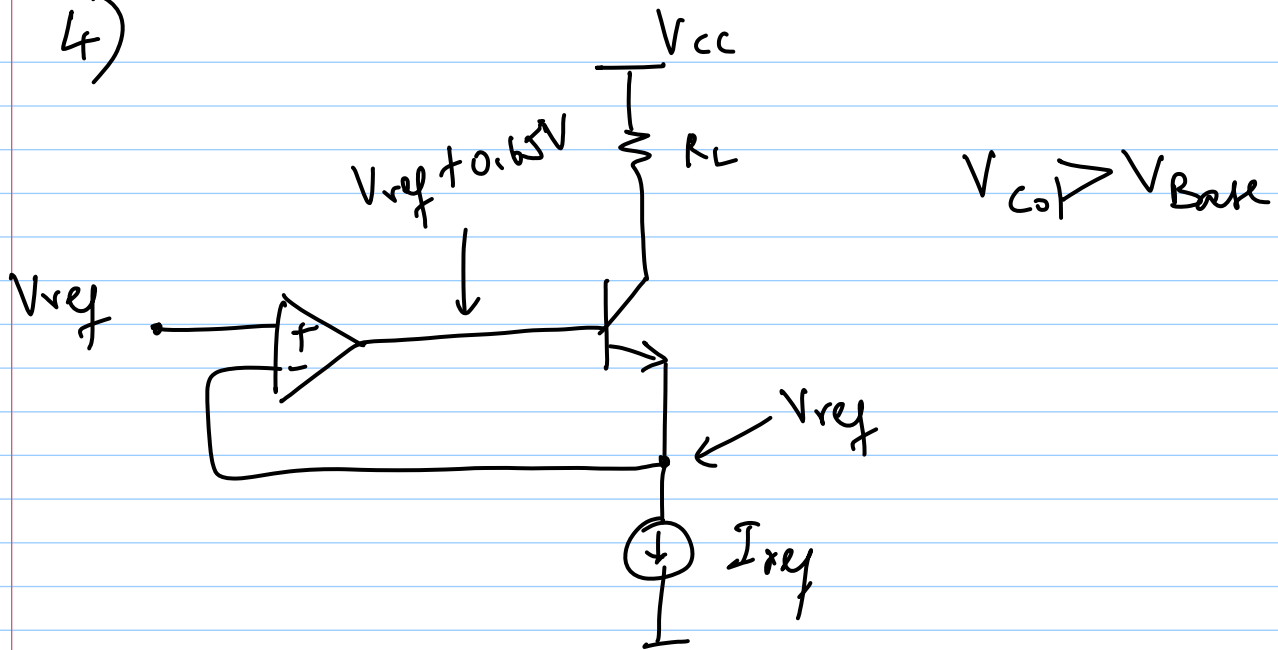
$$I_E = \frac{V_B - 0.65}{R_E}$$

3)



$$V_{ref} > V_B$$

4)



$$V_{ref} + 0.65V < V_{CC} - I_{ref} R_L$$

Swing limits
Saturation limit

$$V_{CE_{sat}} = 0.65V$$

$$V_{CC} - I_0 R_L - g_m R_L V_A \sin \omega t = 0.65V$$

$$V_A = \frac{V_{CC} - I_0 R_L - 0.65}{g_m R_L}$$

Cutoff limit

$$I_0 + g_m V_A \sin \omega t = 0 \Rightarrow V_A = \frac{I_0}{g_m}$$

