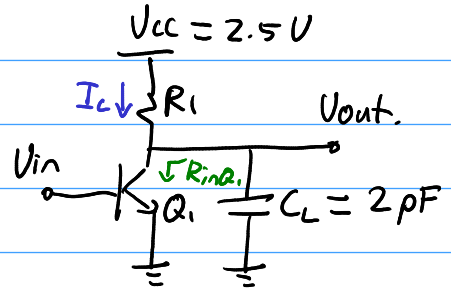
11.1



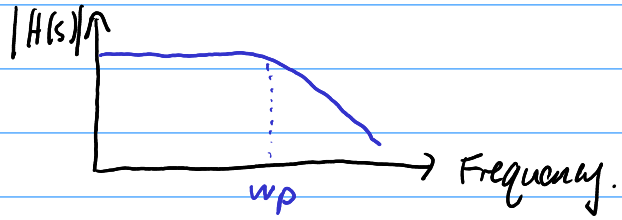
-3dB bandwidth: 1 GHz.
Power budget = 2 mW.

(bias network not shown).

From the power budget, $I_C = \frac{P}{V_{CC}} = \frac{0.002}{2.5} = 0.8$ mA.
$\therefore g_m = \frac{I_C}{V_T} = \frac{0.8}{26} = 30.77$ mS.
Gain at DC $= -g_m R_1$

Since $V_A = \infty$, transistor $r_o = \infty$ and it acts like a current source. $\therefore R_{in Q_1} = \infty$.
$\therefore$ The pole at Vout sees only R_1 to AC ground.

$$\omega_p = \frac{1}{R_1 C_L}$$



We want $f_p = 1$ GHz

$$\therefore 1 \times 10^9 = \frac{1}{2\pi R_1 \times 2 \times 10^{-12}}$$

$R_1 = 79.58\ \Omega$.

This the max value to meet the bandwidth.
$\therefore$ DC gain $= -g_m R_1 = -2.45$.