A BJT transistor amplifier is shown. If $g_m = 20\text{mA/V}$, $r_e = 5k\Omega$, $C = 1\text{pF}$, and $C_c = 5\text{pF}$, find numerical values for (1) the midband gain (MBG), (2) the upper -3dB frequency in Hertz using Miller’s approach and (3) the upper -3dB frequency in Hertz using the open-circuit time constant approach.