

MASSACHUSETTS INSTITUTE OF TECHNOLOGY
DEPARTMENT OF ELECTRICAL ENGINEERING AND COMPUTER SCIENCE

6.101 Introductory Analog Electronics Laboratory
Spring 2003
Problem Set #2

Remember to use standard 5% resistor values. Assume $V_T = 26\text{mV}$ and $V_{BE(ON)} = 0.6\text{V}$.

2.1) Neamen 3.19 page 154, but use $\beta = 200$.

2.2) Neamen 3.23 page 155, but use $I = 1\text{mA}$ and $\beta = 100$.

2.3) Neamen 3.41 page 157, but change the rails from $\pm 6\text{V}$ to $+10\text{V}$ and ground.

Assume C_C is large.

- a) Complete only part (a) of the problem from the book with $\beta = 100$, also:
- b) What is the voltage gain if v_{OUT} is taken at the collector? Assume $r_o = \infty$.
- c) What is the voltage gain if v_{OUT} is taken at the collector and a very large capacitor is connected in parallel with R_E ? Assume $r_o = \infty$.
- d) What effect does the capacitor have in part (c) compared to part (b)?

2.4) Neamen 4.12 page 232.