You are to design a common-collector amplifier with $I_{CQ} = 20\ mA$ and rail voltages of 10.7V and -10V. Operation will be in class A mode and an op amp is to be provided so that the overall voltage gain is 100. The amplifier must not invert the signal and only PNP transistors may be used. Assume that the available op amp can come within 1.3V of either rail.

a) Design the current source and show any calculated component values.

b) Design the amplifier circuit that will respond down to DC showing all component values.

c) What is the maximum undistorted power that can be delivered to a 100 Ohm load for an AC signal? Hint: The rail voltages are not the limiting factor.

d) What is the most negative output voltage possible using realistic assumptions?

e) What is the high-frequency limit of the amplifier assuming that the op amp has a 1MHz gain-bandwidth product.