E151 Lecture 20 Handout

How do you find the differential and common mode of any two signals?

What is the advantage of differential mode signaling?

Draw an emitter coupled pair, annotate the tail node and the tail current

What does Rtail represent?

What is the large signal relationship between the differential voltage and the left and right currents in an emitter coupled pair? Does it have linearity over a wide v_id range?

What is the input differential linear range? The input common mode linear range?

What is the definition of differential mode gain? Common mode gain? CMRR?

What is the basic idea of ½ circuit analysis (for both differential and common modes)?

Draw a differential mode half circuit for an emitter coupled pair and record its gain and Rin

Draw a common mode ½ circuit for an emitter coupled pair and record its gain and Rin

How do you handle elements that bridge the differential “midpoint” of a circuit in a ½ circuit?