Physics 364 Quiz: I guarantee everyone will get 100% on this quiz.

I. Sketch each of these circuits (from memory) and write an expression relating V_{in} and V_{out}.

(a) voltage divider
(b) RC lowpass filter
(c) RC highpass filter
(d) RLC bandpass
   (what is f_0?
    what is bandwidth?)

(e) opamp inverting amplifier
(f) opamp integrator
(g) opamp follower
(h) opamp non-inverting amp
(i) what are R_{IN} of (e) and (h)?
(j) BJT emitter follower
(k) BJT common emitter amp
(l) BJT pushpull buffer
(m) opamp trick to cure (l)'s crossover distortion

II. What are the basic rules that allow you to analyze most active-mode BJT circuits?

(a) names of 3 terminals
(b) two currents related by factor β
(c) two terminals behaving like a forward-biased diode
(d) equation for I_x vs. V_{yz}

III. What is the significance of the expression $25\,mV/I_c$?