Prob.1 -3 : Find the expression for small signal Rin, Gm, Rout and Gain for all the circuits. Assume all the BJTs are biased in forward active region and MOSFETs in saturation. Consider $r_o = \infty$

Prob.1

![Circuit Diagram](a)

![Circuit Diagram](b)
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(c) 

(d)
Prob.2

(a)

(b)
Prob. 3
Prob. 4
For the circuit given below, find the expression for output resistance $R_{out}$, transimpedance $V_{out}/I_{in}$ and current gain $I_{z}/I_{in}$. Assume all the MOSFETs having same W/L and operating in saturation region. Consider $r_0 = \infty$.
Prob. 5
For the circuit given below, find the expression for Rin, Rout, Gm and gain. Assume all the MOSFETs operating in saturation region and consider \( r_0 = \infty \). Plot the behavior of output gain vs R2.