Problem Set 5 - LV 141.246 QISS - 7.5.2012

1. **SQUID with unequal junctions** Consider a SQUID with two unequal junctions (I_l and I_r). Calculate the switching current, i.e. maximum super current.

2. **RCSJ model - pendulum**

   Compare the resistively and capacitively shunted junction (RCSJ) model of a Josephson junction with model of a pendulum including friction. Identify the quantities like torque, angular momentum and relate them to the RCSJ parameters.

3. **RCSJ model - overdamped**

   Solve the RCSJ model in the strongly over damped limit, i.e. $Q \ll 1$. Calculate the voltage versus current relation.