

Ohio University  
Department of Chemical Engineering  
ChE-455/ChE-555: Analysis of Electrochemical Systems  
*Winter Quarter 2007*  
**Homework 4**  
Due: February 26, 2007

1. A standard hydrogen electrode is placed near an inert electrode where hydrogen is evolving from pH 5 electrolyte. At 25 °C the following potentials are measured with a voltmeter connected between the reference electrode and cathode

$i$ (mA/cm <sup>2</sup> )	10	1	0.3	0.1
$E_{\text{meas}}$ (V)	-1.17	-1.05	-0.97	-0.92

- a. Calculate the cathodic overpotential for each measurement
- b. Determine a kinetics expression that simulates the experimental data