

### Quiz 17.4 – Electrolytic Cells

Name: \_\_\_\_\_

Consider a cell designed for electrolytic refinement of impure copper. Two copper electrodes (one pure and one impure) are placed in an acid solution and a voltage is applied

#### Question 1

If your goal is to dissolve the impure copper electrode and increase the mass of the pure copper, which electrode (pure or impure) should be placed as the anode, and which should be placed as the cathode?

#### Question 2

If the system runs at a current of  $3.5\text{ A}$ , how many  $\text{g}$  of pure copper will be recovered after  $3\text{ hours}$ ?

Consider a cell designed for electroplating silver as a thin layer over cheaper metals. One electrode of pure silver and one electrode of the cheaper metal are placed in an acid solution and a voltage is applied

#### Question 3

If your goal is to cover the cheap metal electrode in a thin layer of pure silver, which electrode (silver or other) should be placed as the anode, and which should be placed as the cathode?

#### Question 4

If the system runs at a current of  $0.75\text{ A}$ , how long should the apparatus run to plate a total of  $0.30\text{ g}$  silver?

#### Question 5

If you need to plate  $0.250\text{ g}$  of silver in  $15\text{ minutes}$ , what current should be applied?

*A Light Exists in Spring*

By Emily Dickinson

A Light exists in Spring  
Not present on the Year  
At any other period -  
When March is scarcely here

A Color stands abroad  
On Solitary Fields  
That Science cannot overtake  
But Human Nature feels.

It waits upon the Lawn,  
It shows the furthest Tree  
Upon the furthest Slope you know  
It almost speaks to you.

Then as Horizons step  
Or Noons report away  
Without the Formula of sound  
It passes and we stay -

A quality of loss  
Affecting our Content  
As Trade had suddenly encroached  
Upon a Sacrament