

# HW08 - REDOX and Electrochemical Cells

⚠ This is a preview of the draft version of the quiz

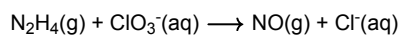
Started: Nov 8 at 5:50pm

## Quiz Instructions

### Question 1

4 pts

Balance the skeletal equation of hydrazine with chlorate ions, shown below:



The reaction takes place in basic solution. What is the smallest possible integer coefficient of  $\text{ClO}_3^-$  in the balanced equation?

- 4
- 1
- 2
- 3

### Question 2

3 pts

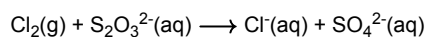
Identify the reducing agent in the reaction in question 1.

- $\text{N}_2\text{H}_4$
- NO
- $\text{Cl}^-$
- $\text{ClO}_3^-$

### Question 3

3 pts

In the reaction of thiosulfate ion with chlorine gas in an acidic solution, what is the reducing agent?



- $\text{S}_2\text{O}_3^{2-}$
- $\text{Cl}_2$
- $\text{S}^{2+}$
- Cl

### Question 4

4 pts

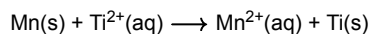
Balance the reaction in question 3 using oxidation and reduction half-reactions. What is the smallest possible integer coefficient of  $\text{SO}_4^{2-}$  in the combined balanced equation?

- 2
- 1
- 3
- 4

### Question 5

4 pts

Consider the cell reaction represented by the skeletal equation:

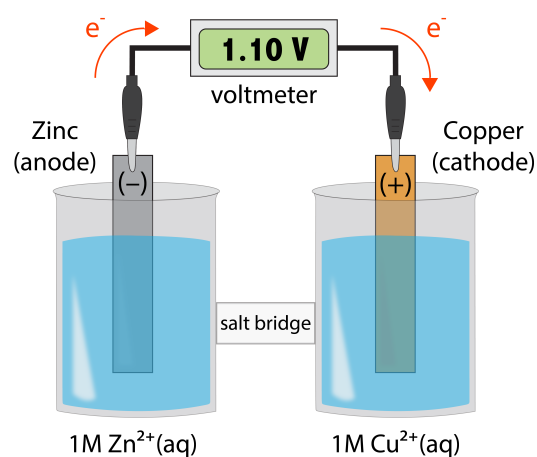


What is the proper cell diagram for this reaction?

- $\text{Mn(s)} \mid \text{Mn}^{2+}(\text{aq}) \parallel \text{Ti}^{2+}(\text{aq}) \mid \text{Ti(s)}$
- $\text{Mn}^{2+}(\text{aq}) \mid \text{Mn(s)} \parallel \text{Ti(s)} \mid \text{Ti}^{2+}(\text{aq})$
- $\text{Ti(s)} \mid \text{Ti}^{2+}(\text{aq}) \parallel \text{Mn}^{2+}(\text{aq}) \mid \text{Mn(s)}$
- $\text{Ti}^{2+}(\text{aq}) \mid \text{Ti(s)} \parallel \text{Mn(s)} \mid \text{Mn}^{2+}(\text{aq})$

### Question 6

4 pts



In this electrochemical cell, what is the reduction half reaction?

- $\text{Cu}^{2+}(\text{aq}) + 2\text{e}^- \longrightarrow \text{Cu(s)}$
- $\text{Zn(s)} \longrightarrow \text{Zn}^{2+}(\text{aq}) + 2\text{e}^-$
- $\text{Cu(s)} \longrightarrow \text{Cu}^{2+}(\text{aq}) + 2\text{e}^-$
- $\text{Zn}^{2+}(\text{aq}) + 2\text{e}^- \longrightarrow \text{Zn(s)}$

**Question 7**

4 pts

In a galvanic cell...

- oxidation and reduction take place at the same time, but at different electrodes
- electrical energy is used to reverse spontaneous chemical reactions
- electrolytes are added to carry electrons between electrodes
- oxidation takes place at the cathode

**Question 8**

4 pts

In a working electrochemical cell (a galvanic cell or a battery), the cations in the salt bridge move toward the cathode.

- True
- False
- It depends on the charge of the cation.
- It is impossible to tell unless we know if the cathode is "+" or "-".

Not saved

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