

Chemistry 12
Electrochemistry I Worksheet

Name:
Date:
Block:

1. Define each:

- a) Oxidation: **loss of electrons**
- b) Reduction: **gain of electrons**
- c) Oxidizing agent: **causes oxidation by undergoing reduction**
- d) Reducing agent: **causes reduction by undergoing oxidation**

2. State the oxidation number of each of the elements that is underlined.

- a) NH₃ -3
- b) H₂SO₄ 6
- c) ZnSO₃ +4
- d) Al(OH)₃ +3
- e) Na 0
- f) Cl₂ 0
- g) AgNO₃ +1
- h) ClO₄⁻ +7
- i) SO₂ +4
- j) K₂CrO₄ +6

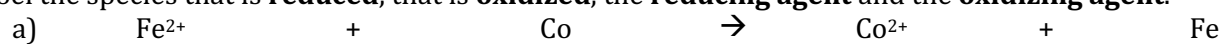
3. What is the oxidation number of carbon in each of the following substances?

- a) CO +2
- b) C 0
- c) CO₂ +4
- d) CO₃²⁻ +4
- e) C₂H₆ -3
- f) CH₃OH -2

4. Label each as oxidation or reduction.

- a) Al → Al³⁺ + 3e⁻ **oxidation**
- b) S + 2e⁻ → S²⁻ **reduction**
- c) 2 O²⁻ → O₂ + 4e⁻ **oxidation**
- d) Ca → Ca²⁺ + 2e⁻ **oxidation**
- e) Ba²⁺ + 2e⁻ → Ba **reduction**
- f) Ga³⁺ + 3e⁻ → Ga **reduction**
- g) 2 N³⁻ → N₂ + 6e⁻ **oxidation**
- h) S²⁻ → S + 2e⁻ **oxidation**
- i) Br₂ + 2e⁻ → 2Br⁻ **reduction**
- j) H₂ → 2H⁺ + 2e⁻ **oxidation**
- k) P + 3e⁻ → P³⁻ **reduction**
- l) 2H⁺ + 2e⁻ → H₂ **reduction**
- m) 2F⁻ → F₂ + 2e⁻ **oxidation**
- n) P³⁻ → P + 3e⁻ **oxidation**

5. Label the species that is **reduced**, that is **oxidized**, the **reducing agent** and the **oxidizing agent**.



Oxidizing
Agent

Reducing
Agent



Oxidizing
Agent

Reducing
Agent



Oxidizing
Agent

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Reducing
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