

Key

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Introduction to Redox Reactions

1. Define the process of **oxidation** in terms of:

- a. Gain or loss of oxygen gain
- b. Gain or loss of hydrogen loss

- c. gain or loss of electrons loss
- d. change in oxidation number increase

2. Define the process of **reduction** in terms of:

- a. Gain or loss of oxygen loss
- b. Gain or loss of hydrogen gain

- c. gain or loss of electrons gain
- d. change in oxidation number decrease

3. Oxidation-reduction reactions occur because of the competition between particles for:

- a) neutrons
- b) electrons
- c) protons
- d) positrons

4. Which statement correctly describes a redox reaction?

- a) oxidation occurs before reduction
- b) oxidation occurs after reduction
- c) oxidation and reduction occur simultaneously
- d) oxidation occurs, but reduction does not

5. All redox reactions involve

- a) the gain of electrons, only
- b) both the gain and the loss of electrons
- c) the loss of electrons, only
- d) neither the gain nor the loss of electrons

6. What occurs when an atom is oxidized in a chemical reaction? **LEO**

- a) a loss of electrons and a decrease in oxidation number
- b) a loss of electrons and an increase in oxidation number
- ~~c) a gain of electrons and a decrease in oxidation number~~
- ~~d) a gain of electrons and an increase in oxidation number~~

7. When a substance is reduced, it **GER**

- a) loses protons
- b) gains protons
- c) acts as a reducing agent
- d) acts as an oxidizing agent

8. Consider the following redox reaction: $Ni + Sn^{4+} \rightarrow Ni^{2+} + Sn^{2+}$

- a) Which species has been reduced? Sn
 - i) This species had a circle one: gain / loss of 2 electrons.
 - ii) This species serves as the oxidizing agent.
- b) Which species has been oxidized? Ni
 - i) This species had a circle one: gain / loss of 2 electrons.
 - ii) This species serves as the reducing agent.

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9. Consider the following redox reaction: $2Fe^{3+} + Sn^{2+} \rightarrow 2Fe^{2+} + Sn^{4+}$

- a) Which species has been reduced? Fe
 - i) This species had a circle one: gain / loss of 1 electrons.
 - ii) This species serves as the oxidizing agent.
- b) Which species has been oxidized? Sn
 - i) This species had a circle one: gain / loss of 2 electrons.
 - ii) This species serves as the reducing agent.

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