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HW - Redox Reactions

1. What is the oxidation number of sulfur in  $\text{Na}_2\text{S}_2\text{O}_3$ ?

(A) -2

(B) +2 2+4-6

(C) +6

(D) 0

2. Which occurs in the half-reaction



(A) Na(s) is reduced.

(B) Na(s) is oxidized.

(C) Na(s) gains electrons.

(D)  $\text{Na}^+$  is oxidized.

3. What species is reduced in the reaction below?



(A)  $\text{Zn}^0$

(B)  $\text{Ag}^0$

(C)  $\text{Zn}^{2+}$

(D)  $\text{Ag}^+$

4. All redox reactions involve

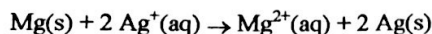
(A) the gain of electrons, only

(B) the loss of electrons, only

(C) both the gain and the loss of electrons

(D) neither the gain nor the loss of electrons

5. Base your answer to the following question on the following reaction.



Which species undergoes a loss of electrons?

(A) Mg(s)

(B)  $\text{Ag}^+(\text{aq})$

(C)  $\text{Mg}^{2+}(\text{aq})$

(D) Ag(s)

6. Which half-reaction correctly represents reduction?

(A)  $\text{Ca}^{2+} \rightarrow \text{Ca} + 2\text{e}^-$

(B)  $\text{Ca}^{2+} + 2\text{e}^- \rightarrow \text{Ca}$

(C)  $2 \text{F}^- + 2\text{e}^- \rightarrow \text{F}_2$

(D)  $2 \text{F}^- \rightarrow \text{F}_2 + 2\text{e}^-$

7. When 1 mole of  $\text{Ni}^{3+}$  changes to  $\text{Ni}^{2+}$ , the  $\text{Ni}^{3+}$  undergoes

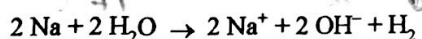
(A) oxidation by losing electrons

(B) oxidation by gaining electrons

(C) reduction by losing electrons

(D) reduction by gaining electrons

8. Given the reaction:



Which substance is oxidized?

(A)  $\text{H}_2$

(B)  $\text{H}^+$  red

(C) Na

(D)  $\text{Na}^+$

9. Which change occurs when an  $\text{Sn}^{2+}$  ion is oxidized?

(A) Two electrons are lost.

(B) Two electrons are gained.

(C) Two protons are lost.

(D) Two protons are gained.

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

(A) neutrons

(B) electrons

(C) protons

(D) positrons