Name: _____

1) Oxidation-reduction reactions occur because of the competition between particles for
A) electrons B) positrons C) protons D) neutrons

2) Which quantities are conserved in all oxidation-reduction reactions?
A) both charge and mass
B) neither charge nor mass
C) mass, only
D) charge, only

3) In the reaction $Zn^0 + Cu^{2+} \longrightarrow Zn^{2+} + Cu^0$, which species is oxidized?
A) Cu^0 B) Cu^{2+} C) Zn^{2+} D) Zn^0

4) Which change occurs when an Sn^{2+} ion is oxidized?
A) Two electrons are gained.
B) Two electrons are lost.
C) Two protons are gained.
D) Two protons are lost.

5) Which half-reaction correctly represents a reduction reaction?
A) $Na^0 + e^- \longrightarrow Na^+$
B) $Li^0 + e^- \longrightarrow Li^+$
C) $Sn^0 + 2e^- \longrightarrow Sn^{2+}$
D) $Br_2^0 + 2e^- \longrightarrow 2Br^-$

6) In the reaction $Zn + Fe^{2+} \longrightarrow Zn^{2+} + Fe$, the reducing agent is
A) Zn^{2+} B) Fe C) Zn D) Fe^{2+}

7) In the reaction $2Fe^{3+} + S^{2-} \longrightarrow 2Fe^{2+} + S^0$, the species oxidized is
A) Fe^{2+} B) S^0 C) S^{2-} D) Fe^{3+}

8) Given the reaction:

$$3Ag + Au^{3+} \longrightarrow 3Ag^+ + Au$$

Which equation correctly represents the oxidation half-reaction?
A) $Au^{3+} \longrightarrow Au + 3e^-$
B) $3Ag \longrightarrow 3Ag^+ + 3e^-$
C) $3Ag + 3e^- \longrightarrow 3Ag^+$
D) $Au^{3+} + 3e^- \longrightarrow Au$

9) In the reaction $Cu + 2Ag^+ \longrightarrow Cu^{2+} + 2Ag$, the oxidizing agent is
A) Cu B) Ag C) Ag^+ D) Cu^{2+}

10) Given the reaction:

$$MnO_2(s) + 4H^+(aq) + 2Fe^{2+}(aq) \longrightarrow Mn^{2+}(aq) + 2Fe^{3+}(aq) + 2H_2O(\ell)$$

Which species is oxidized?
A) $MnO_2(s)$ B) $H^+(aq)$ C) $H_2O(\ell)$ D) $Fe^{2+}(aq)$

11) Which half-cell reaction correctly represents oxidation?
A) $Pb^{2+} + 2e^- \longrightarrow Pb$
B) $Pb + 2e^- \longrightarrow Pb^{2+}$
C) $Pb \longrightarrow Pb^{2+} + 2e^-$
D) $Pb^{2+} \longrightarrow Pb + 2e^-$

12) Which half-reaction correctly represents reduction?
A) $Ca^+ \longrightarrow Ca + 2e^-$
B) $Ca^{2+} + 2e^- \longrightarrow Ca$
C) $2F^- \longrightarrow F_2 + 2e^-$
D) $2F^- + 2e^- \longrightarrow F_2$