

_____ 1. What is the oxidation number of manganese in KMnO_4 ?

- A) +7 B) +2 C) +3 D) +4

_____ 2. What is the oxidation state of nitrogen in the compound NH_4Br ?

- A) -1 B) +2 C) -3 D) +4

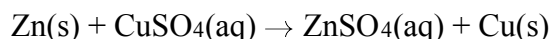
_____ 3. Given the balanced equation representing a reaction:



The oxidation state of chlorine in this reaction changes from

- A) -1 to +1 B) -1 to +5
C) +1 to -1 D) +5 to -1

_____ 4. Given the reaction that occurs in an electrochemical cell:



During this reaction, the oxidation number of Zn changes from

- A) 0 to +2 B) 0 to -2
C) +2 to 0 D) -2 to 0

_____ 5. In an oxidation-reduction reaction, the number of electrons lost is

- A) equal to the number of electrons gained
B) equal to the number of protons gained
C) less than the number of electrons gained
D) less than the number of protons gained

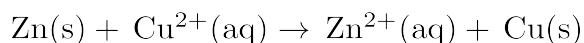
_____ 6. The chemical process in which electrons are gained by an atom or an ion is called

- A) addition B) oxidation
C) reduction D) substitution

_____ 7. Which changes occur when Pt^{2+} is reduced?

- A) The Pt^{2+} gains electrons and its oxidation number increases.
B) The Pt^{2+} gains electrons and its oxidation number decreases.
C) The Pt^{2+} loses electrons and its oxidation number increases.
D) The Pt^{2+} loses electrons and its oxidation number decreases.

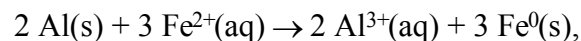
_____ 8. Given the balanced ionic equation:



Which equation represents the oxidation half-reaction?

- A) $\text{Zn}(\text{s}) + 2\text{e}^{-} \rightarrow \text{Zn}^{2+}(\text{aq})$
B) $\text{Zn}(\text{s}) \rightarrow \text{Zn}^{2+}(\text{aq}) + 2\text{e}^{-}$
C) $\text{Cu}^{2+}(\text{aq}) \rightarrow \text{Cu}(\text{s}) + 2\text{e}^{-}$
D) $\text{Cu}^{2+}(\text{aq}) + 2\text{e}^{-} \rightarrow \text{Cu}(\text{s})$

_____ 9. In the reaction

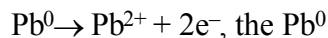


the species oxidized is

- A) $\text{Al}(\text{s})$ B) $\text{Al}^{3+}(\text{aq})$
C) $\text{Fe}(\text{s})$ D) $\text{Fe}^{2+}(\text{aq})$

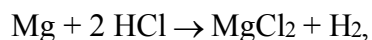
Regents Chemistry

10. In the half-reaction



- A) gains protons B) loses protons
C) is oxidized D) is reduced

11. In the reaction



the magnesium

- A) gains electrons and is reduced
B) gains electrons and is oxidized
C) loses electrons and is reduced
D) loses electrons and is oxidized

12. Which half-reaction equation represents the reduction of an iron(II) ion?

- A) $\text{Fe}^{2+} \rightarrow \text{Fe}^{3+} + \text{e}^-$
B) $\text{Fe}^{2+} + 2\text{e}^- \rightarrow \text{Fe}$
C) $\text{Fe}^{3+} + \text{e}^- \rightarrow \text{Fe}^{2+}$
D) $\text{Fe} \rightarrow \text{Fe}^{2+} + 2\text{e}^-$

13. 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) $2 \text{F}^- \rightarrow \text{F}_2 + 2\text{e}^-$

14. Which half-reaction equation represents the reduction of a potassium ion?

- A) $\text{K}^+ + \text{e}^- \rightarrow \text{K}$ B) $\text{K} + \text{e}^- \rightarrow \text{K}^+$
C) $\text{K}^+ \rightarrow \text{K} + \text{e}^-$ D) $\text{K} \rightarrow \text{K}^+ + \text{e}^-$

15. What occurs during the reaction below?



- A) The manganese is reduced and its oxidation number changes from +4 to +2.
B) The manganese is oxidized and its oxidation number changes from +4 to +2.
C) The manganese is reduced and its oxidation number changes from +2 to +4.
D) The manganese is oxidized and its oxidation number changes from +2 to +4.

16. In which compound does carbon have an oxidation state of -4?

- A) CO B) CO₂
C) CCl₄ D) CH₄