

- Identify the choice that best completes the statement or answers the question.*

- ____ 13. What are the oxidation and reduction half-reactions for the redox reaction of $\text{Fe} + \text{F}_2 \longrightarrow \text{FeF}_3$?
- $\text{F}_2 + 2\text{e}^- \longrightarrow 2\text{F}^-$, $\text{Fe} \longrightarrow \text{Fe}^{3+} + 3\text{e}^-$
 - $\text{Fe} \longrightarrow \text{Fe}^{3+} + 3\text{e}^-$, $\text{F}_2 + 2\text{e}^- \longrightarrow 2\text{F}^-$
 - $\text{Fe} + 3\text{e}^- \longrightarrow \text{Fe}^{3+}$, $\text{F}_2 + 2\text{e}^- \longrightarrow 2\text{F}$
 - $\text{F}_2 + 2\text{e}^- \longrightarrow 2\text{F}^-$, $\text{Fe} + 3\text{e}^- \longrightarrow \text{Fe}^{3+}$
- ____ 14. When iron is obtained from iron ore according to the equation $2\text{Fe}^{3+} + 3\text{O}^{2-} + 3\text{CO} \rightarrow 2\text{Fe} + 3\text{CO}_2$, what is the reducing agent?
- O^{2-}
 - Fe^{3+}
 - Fe
 - C^{2+}
- ____ 15. When an element is reduced, its oxidation number ____.
- may increase or decrease
 - increases
 - stays the same
 - decreases
- ____ 16. A silver vase exposed to the air for a long time is most likely to have an outer coating of ____.
- silver metal
 - silver sulfide
 - silver oxide
 - hydrogen sulfide
- ____ 17. All of the following are biochemical redox processes except ____.
- photosynthesis
 - respiration
 - corrosion
 - bioluminescence
- ____ 18. When silver reacts with sulfur to form tarnish, what element is the oxidizing agent?
- S^{2-}
 - Ag
 - Ag^+
 - S
- ____ 19. How do mammals keep from freezing during the winter?
- hibernation
 - chemiluminescence
 - oxidation of fats stored in the body
 - combustion
- ____ 20. Electrons gained and lost during a redox reaction can be determined by examining the ____ of the elements involved.
- coefficients
 - formulas
 - symbols
 - oxidation number

Matching

Match each item with the correct item below.

- | | |
|--|-------------------------|
| a. reducing agent | f. rust |
| b. $\text{Ag}^0 \rightarrow \text{Ag}^+ + e^-$ | g. oxidation number = 0 |
| c. a common oxidizing agent | h. reduction |
| d. oxidation | i. 2- |
| e. $\text{Fe}^{3+} + 3e^- \rightarrow \text{Fe}^0$ | j. redox reaction |

- _____ 21. an element in its free form
- _____ 22. formation of tarnish
- _____ 23. loss of electrons
- _____ 24. gain of electrons
- _____ 25. always oxidized
- _____ 26. oxygen
- _____ 27. oxide ion
- _____ 28. combustion
- _____ 29. Fe_2O_3
- _____ 30. blast furnace

Match each item with the correct item below.

- a. oxidizing agent
- b. reducing agent
- c. both

- _____ 31. Cl^-
- _____ 32. SO_2
- _____ 33. F_2
- _____ 34. O_2^{2-}
- _____ 35. Cr^{3+}
- _____ 36. S^{2-}
- _____ 37. I_2
- _____ 38. H_2
- _____ 39. Cu^+
- _____ 40. O_2
- _____ 41. K^+
- _____ 42. Ca^{2+}
- _____ 43. Na
- _____ 44. CO
- _____ 45. Fe^{3+}

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