# Chapter 16 Practice Questions

1) Reduction involves which of the following?
   1. Loss of electron(s).
   2. Gain of electron(s).
   3. Decrease in oxidation state.

A) 3 only B) 1 only C) 2 only D) 1 and 2 only E) 2 and 3 only

2) The reducing agent typically:
   A) gains electrons.
   B) is the oxidized substance.
   C) is itself reduced.
   D) always remains unchanged during a reaction.
   E) none of the above

3) Identify the substance being oxidized in the following reaction: $CH_4 + 2O_2 \rightarrow CO_2 + 2H_2O$.
   A) $CH_4$
   B) $O_2$
   C) $CO_2$
   D) $H_2O$
   E) none of the above

4) Identify the reducing agent in the following reaction: $CH_4 + 2O_2 \rightarrow CO_2 + 2H_2O$.
   A) $CH_4$
   B) $O_2$
   C) $CO_2$
   D) $H_2O$
   E) none of the above

5) In the following reaction,
   $Mg\ (s) + Cu^{2+}\ (aq) \rightarrow Mg^{2+}(aq) + Cu\ (s)$:
   A) $Mg^{2+}$ is the reducing agent and Cu is the oxidizing agent.
   B) Mg is the reducing agent and $Cu^{2+}$ is the oxidizing agent.
   C) Mg is the reducing agent and Cu is the oxidizing agent.
   D) $Cu^{2+}$ is the reducing agent and Mg is the oxidizing agent.
   E) Cu is the reducing agent and $Mg^{2+}$ is the oxidizing agent.

6) What is the oxidation state of the underlined atom in the compound: $H_2\underline{S}O_4$?

A) +1 B) +2 C) –2 D) +6 E) +4

7) What is the oxidation state of the underlined atom in the reaction: $\underline{Cl_2} + Mg \rightarrow MgCl_2$

A) 0 B) +2 C) –2 D) +4 E) –4

8) What is the oxidation state of the underlined atom in the reaction: $NaHCO_3 + H\underline{Cl} \rightarrow NaCl + CO_2 + H_2O$

A) 0 B) +1 C) –1 D) +2 E) –2

9) What is the oxidation state of the underlined atom in the reaction: $\underline{Na}HCO_3 + HCl \rightarrow NaCl + CO_2 + H_2O$

A) 0 B) +1 C) –1 D) +2 E) –2

10) What is the oxidation state of sulfur in $SO_3^{2-}$?

A) 0 B) –2 C) +3 D) +4 E) +6

11) Which substance below would contain a nitrogen atom with the highest oxidation number of all those shown?

A) $NO_2$ B) $NO_3^{1-}$ C) $NH_3$ D) $NH_4^{1+}$ E) $N_2$

12) For the reaction $KMnO_4 + Li \rightarrow LiMnO_4 + K$, which atom is being reduced?

A) O
B) Li
C) K
D) Mn
E) none of the above

Answer Key
Testname: PRACTICEQ_CH16

1) E
2) B
3) A
4) A
5) B
6) D
7) A
8) C
9) B
10) D
11) B
12) C