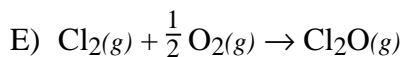
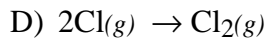
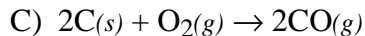
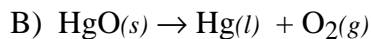
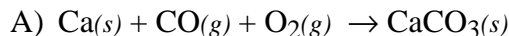


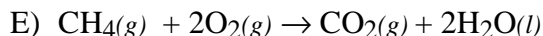
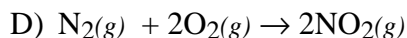
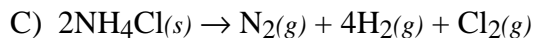
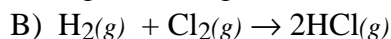
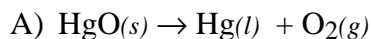
Sample Multiple Choice Questions

11. Consider the reaction: $\text{H}_2(g) + \text{I}_2(g) \rightarrow 2 \text{HI}(g)$. Which of the following is true.
- A) ΔH° is negative, and $\Delta H^\circ = \Delta E^\circ$
 - B) ΔH° is positive, and $\Delta H^\circ = \Delta E^\circ$
 - C) ΔH° is negative, and $\Delta H^\circ \neq \Delta E^\circ$
 - D) ΔH° is positive, and $\Delta H^\circ \neq \Delta E^\circ$
 - E) $\Delta H^\circ_{\text{rxn}} = \Delta H^\circ_{\text{f}}(\text{HI}(g))$
12. Which of the following reactions is not exothermic?
- A) $2\text{H}_2(g) + \text{O}_2(g) \rightarrow 2\text{H}_2\text{O}(g)$
 - B) $\text{Ba}(\text{OH})_2 \cdot 8\text{H}_2\text{O}(s) + 2\text{NH}_4\text{Cl}(s) \rightarrow \text{BaCl}_2(aq) + 10\text{H}_2\text{O}(l) + 2\text{NH}_3(aq)$
 - C) $\text{HCl}(aq) + \text{NaOH}(aq) \rightarrow \text{NaCl}(aq) + \text{H}_2\text{O}(l)$
 - D) $2\text{C}_4\text{H}_{10}(g) + 13\text{O}_2(g) \rightarrow 8\text{CO}_2(g) + 10\text{H}_2\text{O}(g)$
 - E) $\text{Al}(s) + \text{Br}_2(l) \rightarrow \text{AlBr}_3(s)$
13. The addition of 3.31 kJ of heat to a 300. g sample of mercury at 19.0 °C caused the temperature to rise to 99.0 °C. What is the specific heat of mercury?
- A) $41.4 \frac{\text{J}}{\text{g} \cdot ^\circ\text{C}}$
 - B) $7.25 \frac{\text{J}}{\text{g} \cdot ^\circ\text{C}}$
 - C) $0.581 \frac{\text{J}}{\text{g} \cdot ^\circ\text{C}}$
 - D) $0.138 \frac{\text{J}}{\text{g} \cdot ^\circ\text{C}}$
 - E) $0.111 \frac{\text{J}}{\text{g} \cdot ^\circ\text{C}}$

14. Which of the following equations is an example of a standard formation reaction?



15. For which of the following reactions is $\Delta E = \Delta H$?



9. Which of the following elements has the largest ionization energy?

A) O

B) B

C) I

D) Cs

E) S

10. Which of the following is isoelectronic with Ba^{2+} ?

A) Ca^{2+}

B) La^{2+}

C) O^{2-}

D) I^-

E) Rn

11. Which of the following has the smallest radius?

A) N

B) B

C) Al

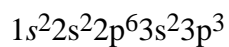
D) Be

E) C

13. A possible set of quantum numbers for the last electron added to complete the ground state electron configuration for a neutral zinc atom is,

	n	l	m_l	m_s
A)	3	2	+2	$-\frac{1}{2}$
B)	4	1	-1	$-\frac{1}{2}$
C)	3	1	0	$+\frac{1}{2}$
D)	4	3	0	$+\frac{1}{2}$
E)	4	2	-2	$+\frac{1}{2}$

15. An atom of the element X has the electron configuration



The compound most likely to form with Br is,

- A) XBr
B) XBr₂
C) X₂Br₃
D) XBr₃
E) X₃Br₂
16. What is the electron configuration of a Co³⁺ ion?
- A) [Ar]4d⁶
B) [Ar]3d⁶
C) [Ar]4s²3d¹⁰
D) [Ar]4s²3d⁴
E) [Ar]4s²3d⁷