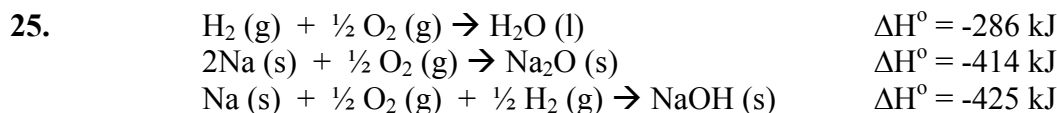
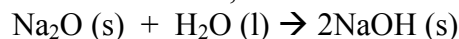


AP MULTIPLE CHOICE QUESTIONS
CH. 19, SET 2

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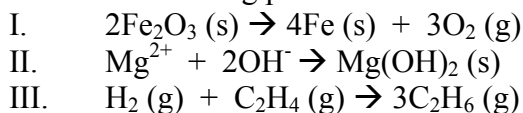


Based on the information above, what is the standard enthalpy change for the following reaction?



- (A) -1,125 kJ (C) -722 kJ (E) +275 kJ
(B) -978 kJ (D) -150 kJ

35. For which of the following processes would ΔS have a negative value?



- (A) I only (C) I and III only (E) I, II and III
(B) I and II only (D) II and III only

41. A strip of metallic scandium, Sc, is placed in a beaker containing concentrated nitric acid. A brown gas rapidly forms, the scandium disappears, and the resulting liquid is brown-yellow but becomes colorless when warmed. These observations best support which of the following statements?

- (A) Nitric acid is a strong acid.
(B) In solution, scandium nitrate is colorless and scandium chloride is colorless.
(C) Nitric acid reacts with metals to form hydrogen.
(D) Scandium reacts with nitric acid to form a brown gas.
(E) Scandium and nitric acid react in mole proportions of 1 to 3.



The reaction indicated above is thermodynamically spontaneous at 298K, but becomes nonspontaneous at higher temperatures. Which of the following is true at 298K?

- (A) ΔG , ΔH , and ΔS are all positive. (D) ΔG and ΔS are negative, but ΔH is positive.
(B) ΔG , ΔH , and ΔS are all negative. (E) ΔG and ΔH are positive, but ΔS is negative.
(C) ΔG , and ΔH are negative, but ΔS is positive.

69. Correct procedures for a titration include which of the following?

- I. Draining a pipet by touching the tip to the side of the container used for the titration.
II. Rinsing the buret with distilled water just before filling it with the liquid to be titrated.
III. Swirling the solution frequently during the titration.

- (A) I only (C) I and II only (E) I, II and III
(B) II only (D) II and III only

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22. Of the following reactions, which involves the largest decrease in entropy?

- (A) $\text{CaCO}_3(\text{s}) \rightarrow \text{CaO}(\text{s}) + \text{CO}_2$
(B) $2\text{CO}(\text{g}) + \text{O}_2(\text{g}) \rightarrow 2\text{CO}_2(\text{g})$
(C) $\text{Pb}(\text{NO}_3)_2(\text{s}) + 2\text{KI}(\text{s}) \rightarrow \text{PbI}_2(\text{s}) + 2\text{KNO}_3(\text{s})$
(D) $\text{C}_3\text{H}_8(\text{g}) + 5\text{O}_2(\text{g}) \rightarrow 3\text{CO}_2(\text{g}) + 4\text{H}_2\text{O}(\text{g})$
(E) $4\text{La}(\text{s}) + 3\text{O}_2(\text{g}) \rightarrow 2\text{La}_2\text{O}_3(\text{s})$