

# 高中必刷题高二选择性必修1第一章 化学反应的热效应 专题1 反应热知识的综合应用

## 1. 选择题

相同条件下，下列各组热化学方程式（溶液中的反应均是在稀溶液之间进行）中， $\Delta H_2 > \Delta H_1$  的是（ ）

- A.  $\text{CO}_2(\text{s}) + \text{C}(\text{s}) = 2\text{CO}(\text{g}) \quad \Delta H_1$   $\text{CaO}(\text{s}) + \text{H}_2\text{O}(\text{l}) = \text{Ca}(\text{OH})_2(\text{s}) \quad \Delta H_2$   
 B.  $\text{NH}_3 \cdot \text{H}_2\text{O}(\text{aq}) + \text{H}^+(\text{aq}) = \text{NH}_4^+(\text{aq}) + \text{H}_2\text{O}(\text{l}) \quad \Delta H_1$   $\text{H}^+(\text{aq}) + \text{OH}^-(\text{aq}) = \text{H}_2\text{O}(\text{aq}) \quad \Delta H_2$   
 C. 闪电时， $\text{N}_2(\text{g}) + \text{O}_2(\text{g}) = 2\text{NO}(\text{g}) \quad \Delta H_1$  高温时， $\text{N}_2(\text{g}) + \text{O}_2(\text{g}) = 2\text{NO}(\text{g}) \quad \Delta H_2$   
 D.  $\text{CH}_4(\text{g}) + 2\text{O}_2(\text{g}) = \text{CO}_2(\text{g}) + 2\text{H}_2\text{O}(\text{l}) \quad \Delta H_1$   $\text{CH}_4(\text{g}) + 2\text{O}_2(\text{g}) = \text{CO}_2(\text{g}) + 2\text{H}_2\text{O}(\text{g}) \quad \Delta H_2$

## 2. 选择题

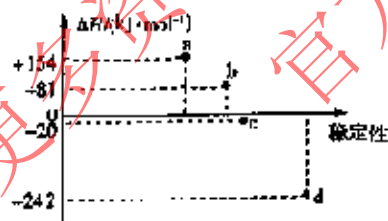
下列各组热化学方程式中，化学反应的 $\Delta H$ 前者小于后者的有（ ）

- ①  $\text{H}_2(\text{g}) + \text{Cl}_2(\text{g}) = 2\text{HCl}(\text{g}) \quad \Delta H_1$   $\text{H}_2(\text{g}) + \text{Br}_2(\text{g}) = 2\text{HBr}(\text{g}) \quad \Delta H_2$   
 ②  $\text{S}(\text{g}) + \text{O}_2(\text{g}) = \text{SO}_2(\text{g}) \quad \Delta H_3$   $\text{S}(\text{s}) + \text{O}_2(\text{g}) = \text{SO}_2(\text{g}) \quad \Delta H_4$   
 ③  $\text{N}_2\text{O}_4(\text{g}) \rightleftharpoons 2\text{NO}_2(\text{g}) \quad \Delta H_5$   $2\text{NO}_2(\text{g}) \rightleftharpoons \text{N}_2\text{O}_4(\text{g}) \quad \Delta H_6$   
 ④  $\text{CaCO}_3(\text{s}) = \text{CaO}(\text{s}) + \text{CO}_2(\text{g}) \quad \Delta H_7$   $\text{CaO}(\text{s}) + \text{H}_2\text{O}(\text{l}) = \text{Ca}(\text{OH})_2(\text{s}) \quad \Delta H_8$   
 ⑤  $\frac{1}{2}\text{H}_2\text{SO}_4(\text{浓}, \text{aq}) + \text{NaOH}(\text{aq}) = \frac{1}{2}\text{Na}_2\text{SO}_4(\text{aq}) + \text{H}_2\text{O}(\text{l}) \quad \Delta H_9$   
 $\text{HCl}(\text{aq}) + \text{NaOH}(\text{aq}) = \text{NaCl}(\text{aq}) + \text{H}_2\text{O}(\text{l}) \quad \Delta H_{10}$   
 ⑥  $\text{C}(\text{s}) + \frac{1}{2}\text{O}_2(\text{g}) = \text{CO}(\text{g}) \quad \Delta H_{11}$   $\text{C}(\text{s}) + \text{O}_2(\text{g}) = \text{CO}_2(\text{g}) \quad \Delta H_{12}$

A. 2项 B. 3项 C. 4项 D. 5项

## 3. 选择题

298 K、 $1.01 \times 10^5 \text{ Pa}$  下， $\text{O}_2$ 、S、Se、Te分别与 $\text{H}_2$ 化合的反应焓变数据如图所示(a、b、c、d代表氢化物)。下列关于Se与 $\text{H}_2$ 化合的热化学方程式的书写正确的是( )



- A.  $\text{Se}(\text{s}) + \text{H}_2(\text{g}) = \text{H}_2\text{Se}(\text{g}) \quad \Delta H = -242 \text{ kJ} \cdot \text{mol}^{-1}$   
 B.  $\text{Se}(\text{s}) + \text{H}_2(\text{g}) = \text{H}_2\text{Se}(\text{g}) \quad \Delta H = -20 \text{ kJ} \cdot \text{mol}^{-1}$   
 C.  $\text{Se}(\text{g}) + \text{H}_2(\text{g}) = \text{H}_2\text{Se}(\text{g}) \quad \Delta H = +81 \text{ kJ} \cdot \text{mol}^{-1}$   
 D.  $\text{Se}(\text{s}) + \text{H}_2(\text{g}) = \text{H}_2\text{Se}(\text{g}) \quad \Delta H = +81 \text{ kJ} \cdot \text{mol}^{-1}$

## 4. 选择题

如图是金属镁和卤素单质( $\text{X}_2$ )反应的能量变化示意图。下列说法正确的是