

2005 年硕士学位研究生入学考试试题参考答案

$$\ln[m(T_2)/m(T_1)] = \ln(S_2/S_1) = (\Delta_r H_m^s / R) \times (1/T_1 - 1/T_2)$$

$$\Delta_r H_m^s = 56.40 \text{ kJ} \cdot \text{mol}^{-1} \quad (4 \text{ 分})$$

$$\ln[S(333.15 \text{ K})/S(329.15 \text{ K})] = (\Delta_r H_m^s / R) \times (1/329.15 \text{ K} - 1/333.15 \text{ K})$$

$$S(333.15 \text{ K}) = 4.24 \text{ g}/(100 \text{ g H}_2\text{O}) \quad (2 \text{ 分})$$

4. A、B 混合： $m(T_A - T')C_{p,A} = m(T' - T_B)C_{p,B}$ (3 分)

$$C_{p,B} = (3/2)C_{p,A} \quad C_{p,C} = (1/3)C_{p,A} \quad (2 \text{ 分})$$

B、C 混合： $m(T_B - T)C_{p,B} = m(T - T_C)C_{p,C}$

$$T = 289.7 \text{ K} \quad (5 \text{ 分})$$

5. (1) $\ln\left(\frac{k_2}{k_1}\right) = \frac{E_a}{R} \left(\frac{1}{T_1} - \frac{1}{T_2}\right)$ (2 分)