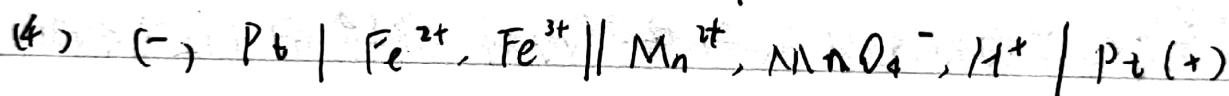
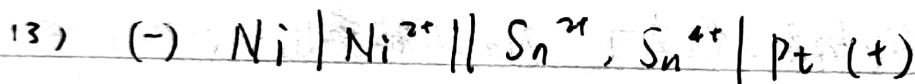
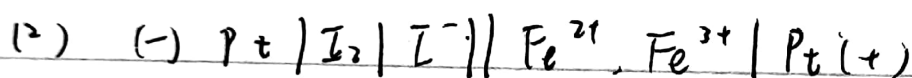
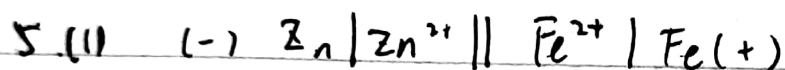
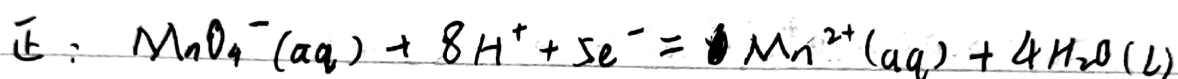
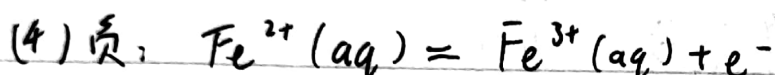
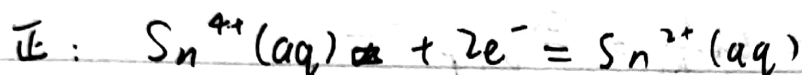
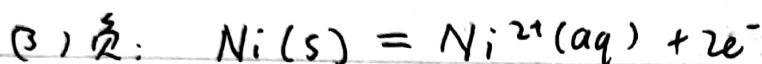
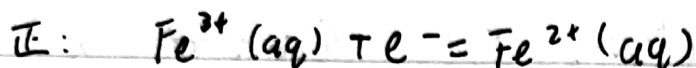
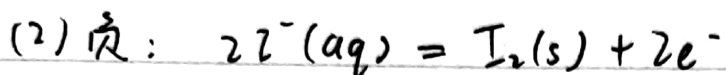
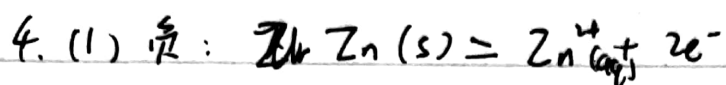


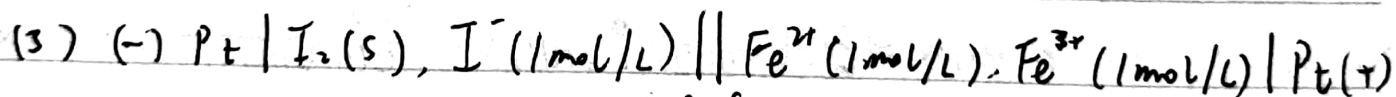
第四章



9. (1) $\varphi^\ominus(\text{I}_2/\text{I}^-) = 0.5355 \text{ V}$, $\varphi^\ominus(\text{Fe}^{3+}/\text{Fe}^{2+}) = 0.771 \text{ V}$

故 $E = \varphi^\ominus(+)-\varphi^\ominus(-) = 0.2355 \text{ V}$

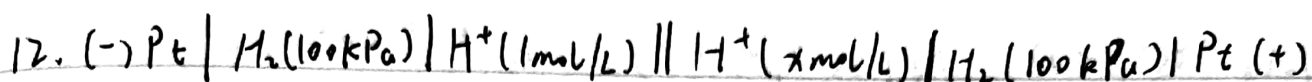
(2) $\Delta_r G^\ominus = -nFE^\ominus = -45.44 \text{ kJ/mol}$



(4) $\varphi(\text{I}_2/\text{I}^-) = 0.5355 \text{ V} + \frac{0.05917}{2} \lg(10^{+2})^2 = 0.6538 \text{ V}$

$\varphi(\text{Fe}^{3+}/\text{Fe}^{2+}) = 0.771 \text{ V} + 0.05917 \cdot \lg 10^{-1} = 0.71183 \text{ V}$

$E = \varphi(+)-\varphi(-) = 0.06 \text{ V}$



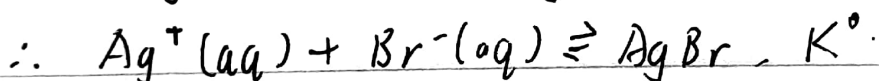
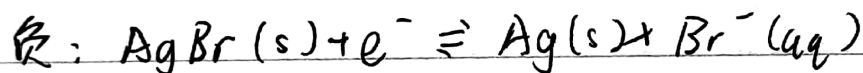
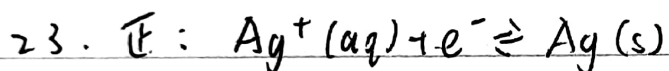
$$E = \varphi(+)-\varphi(-) = 0.016 \text{ V}$$

解得: $x = 0.19 \text{ mol/L}$

17. 因为 $\varphi^\ominus(\text{MnO}_2/\text{Mn}^{2+}) = 1.224 \text{ V}$, $\varphi^\ominus(\text{Cl}_2/\text{Cl}^-) = 1.35827 \text{ V}$

\therefore 反应应该向左进行

但在加热状态下加浓盐酸增加 H^+ 浓度可以使 $\varphi^\ominus(\text{MnO}_2/\text{Mn}^{2+})$ 增大, 使 $\varphi^\ominus(\text{Cl}_2/\text{Cl}^-)$ 减小, 所以反应可以正向进行.



$$\text{又 } E^\ominus = \varphi^\ominus(\text{Ag}^+/\text{Ag}) - \varphi^\ominus(\text{AgBr}) = 0.726 \text{ V}$$

$$\lg K^\ominus = nE^\ominus / 0.0591 \text{ V} = 12.28$$

$$\therefore K_3 = \frac{1}{K^\ominus} = 5.13 \times 10^{-13}$$