

1. Give formulas for the following compounds. (寫出化學式) (30%)
 - a. sodium peroxide
 - b. dinitrogen pentoxide
 - c. carbon disulfide
 - d. ozone
 - e. potassium permanganate
 - f. calcium sulfate
2. Balance the following chemical equations : (平衡方程式)
 - a. $\text{C}_8\text{H}_{18}(\text{l}) + \text{NH}_4\text{NO}_3(\text{s}) \rightarrow \text{CO}_2(\text{g}) + \text{N}_2(\text{g}) + \text{H}_2\text{O}(\text{g})$ (10%)
 - b. $\text{MnO}_4^- + \text{CH}_4\text{O} + \text{H}^+ \rightarrow \text{CH}_2\text{O}_2 + \text{H}_2\text{O} + \text{Mn}^{2+}$ (10%)
3. Give Lewis formulas for the following molecules. (20%)
(畫出路易士結構式並預測其形狀)
 - a. XeO_2F_2
 - b. H_2SO_4
 - c. SnCl_2
 - d. PF_5
4. 69.08%的濃硝酸 HNO_3 比重為 1.42, 其莫耳濃度=? (H=1, N=14, O=16) (10%)
5. 如何由 69.08% 的 HNO_3 配出 2 M 的稀硝酸 1500 mL? (10%)
6. 1 M 的稀硝酸溶液其 pH 值約為多少? (10%)