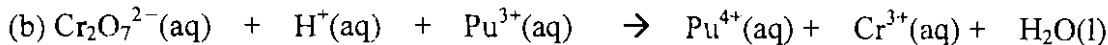
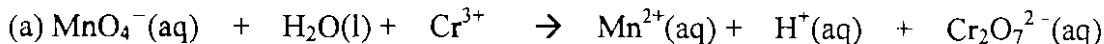
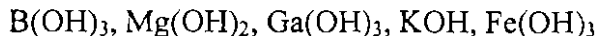


1. Balance the equations for the following reactions: (每小題 10% , 共 20%)

(平衡方程式)



2. 下列化合物，何者為酸性？何者為兩性？何者為鹼性？ (10%)



3. Explain the following terms: (舉例說明下列名詞) (每小題 5% , 共 25%)

(a) ozone

(b) inorganic compound

(c) halogen

(d) octet 或 expanded octet

(e) formation constant

4. For each of the following molecules or ions find its Lewis structure ?

(畫出下列路易士結構並說明其形狀) (每小題 5% , 共 20%)

(a)  $\text{HNO}_3$

(b)  $\text{ClOF}_2^+$

(c)  $\text{IF}_5$

(d)  $\text{C}_2\text{H}_2$

5.  $\text{CH}_3\text{COOH}$  之  $k_a = 1.8 \times 10^{-5}$ ,  $\text{p}K_a = 4.75$ , 如何以  $\text{CH}_3\text{COOH}$  與  $\text{CH}_3\text{COONa}$  配製  $\text{pH} = 9$  的緩衝溶液？ (C=12, H=1, O=16, Na=23) (15%)

6. 用分子軌域(MO)解釋  $\text{CO}$  是單鍵、雙鍵、或參鍵。 (10%)