國立高雄師範大學九十九學年度轉學生招生考試試題

系所別：化學系三年級　　（以鉛筆作答者不予計分）

科　目：分析化學（全一頁）

※注意：不必抄題，作答時請將試題題號及答案依照順序寫在答案卷上，於本試題上作答者，不予計分。

1. What is the pH of a solution that is prepared by dissolving 3.30 g of $(NH_4)_2SO_4$ in water, adding 125.0 mL of 0.1011 M NaOH, and diluting to 500.0 mL? (N=14,S=32,O=16,H=1)(Ka for NH_4^+=5.70 x 10^{-10}) （20％）

2. A 0.2356 g sample containing only NaCl (58.44 g/mol) and $BaCl_2$ (208.23 g/mol) yielded 0.4637 g of dried AgCl (143.32 g/mol). Calculate the percentage of NaCl in the sample. （20％）

3. Calculate the molar concentration of HNO_3 (63 g/mol) in a solution that has a specific gravity of 1.42 and is 70.5% HNO_3 (w/w). （10％）

4. Calculate the potential of a galvanic cell consisting of a lead electrode on the one side immersed in 0.0848 M Pb^{2+} and a zinc electrode on the other side in contact with 0.1364 M Zn^{2+} (two half-cell are connected by a salt bridge).($Pb^{2+} + 2e^- \rightleftharpoons Pb(s)$, E^0 = -0.126 V; $Zn^{2+} + 2e^- \rightleftharpoons Zn(s)$, E^0 = -0.763 V) （10％）

5. The solubility-product constant for K_2PdCl_6 is 6.0 x 10^{-6} ($K_2PdCl_6 \rightleftharpoons 2K^+ + PdCl_6^{2-}$). What is the K^+ concentration of a solution prepared by mixing 50.0 mL of 0.200 M KCl with 50.0 mL of 0.100 M $PdCl_6^{2-}$? （20％）

6. A 0.4512 g sample of primary standard grade Na_2CO_3 required 36.44 mL of an H_2SO_4 solution to reach the end point in the reaction
   $CO_3^{2-} + 2H^+ \rightarrow H_2O + CO_2(g)$
   What is the molarity of the H_2SO_4?(Na=23, C=12, O=16) （20％）