

# 淡江大學八十九學年度日間部轉學生招生考試試題

系別：化學系三年級

科目：分析化學

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本試題共 1 頁

一. Define the following terms :

- (1) Buffer capacity
- (2) Parts per million ( ppm )
- (3) Volhard method ( 30% )
- (4) Isoelectric point
- (5) Kjeldahl method
- (6) Chelating agent

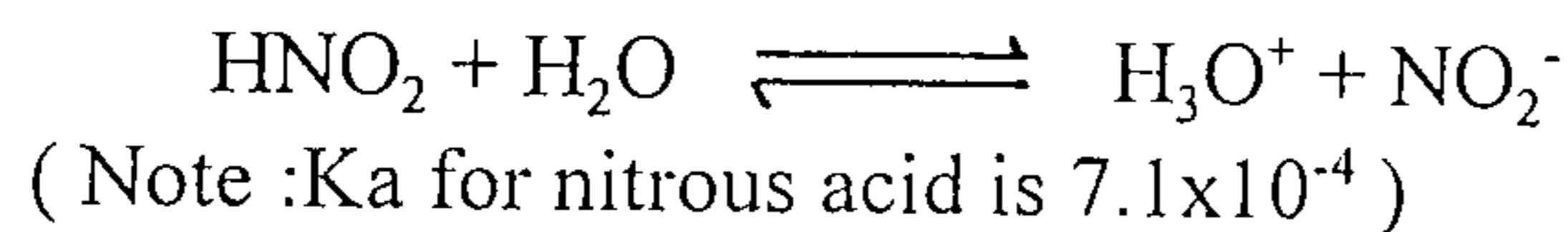
二. (a) What mass of  $\text{AgNO}_3$  ( 169.9 g/mol ) is needed to convert 2.33 g of  $\text{Na}_2\text{CO}_3$  ( 106.0 g/mol ) to  $\text{Ag}_2\text{CO}_3$ ? (b) What mass of  $\text{Ag}_2\text{CO}_3$  ( 275.7 g/mol ) will be formed? ( 10% )

三. Calculate the standard deviation of the result of ( 5% )

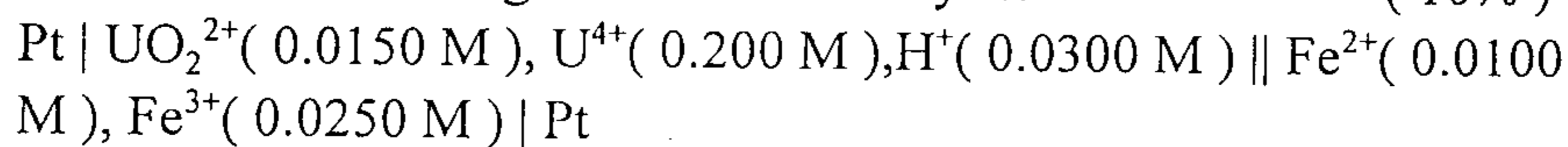
$$\frac{4.10(\pm 0.02) \times 0.0050(\pm 0.0001)}{1.97(\pm 0.04)} = 0.0104(\pm ?)$$

四. Calculate the solubility of  $\text{Ba}(\text{IO}_3)_2$  in a solution prepared by mixing 200 mL of 0.0100 M  $\text{Ba}(\text{NO}_3)_2$  with 100 mL of 0.100 M  $\text{NaIO}_3$ . ( Note :  $K_{sp}$  for  $\text{Ba}(\text{IO}_3)_2$  is  $1.57 \times 10^{-9}$  ) ( 10% )

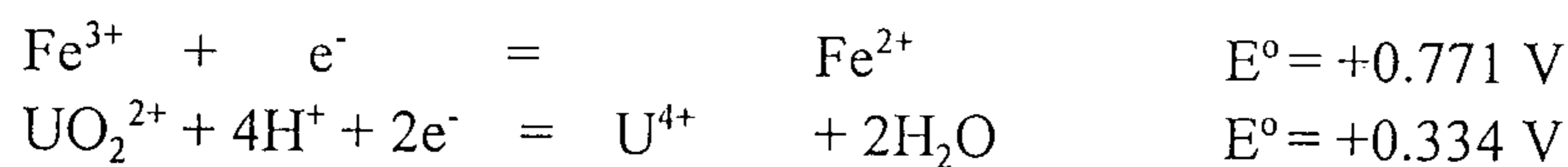
五. Calculate the hydronium ion concentration in 0.120 M nitrous acid . The principal equilibrium is ( 10% )



六. Calculate the thermodynamic potential of the following cell and indicate whether it is galvanic or electrolytic. ( 10% )



The two half-reactions are



七. (a) 何謂  $\text{C}_{18}$  逆相 ( reversed-phase HPLC ) 分離管柱?  
(b)  $\text{C}_{18}$  分離管柱主要用於分離那類化合物? ( 10% )

八. 說明毛細管電泳 ( Capillary Electrophoresis ) 分離法的原理. ( 5% )

九. (a) 何謂超臨界流體層析法 ( SFC )?  
(b) 和氣體層析法 ( GC ) 比較, 那些溶質比較適用於 SFC 來分析? ( 10% )