

國立臺灣師範大學 108 學年度碩士班招生考試試題

科目：分析化學

適用系所：化學系

注意：1.本試題共 1 頁，請依序在答案卷上作答，並標明題號，不必抄題。2.答案必須寫在指定作答區內，否則依規定扣分。

1. Please give a brief description or an explanation for following terms: (5 points each)
 - (a) zwitterion
 - (b) back titration
 - (c) standardization
 - (d) detection limit
 - (e) activity coefficient
 - (f) masking agent
 - (g) stationary phase (as in chromatography)
 - (h) electrical double layer
2. Please “list” the names of analytical methods or instruments that can be used for determination of cation in an aqueous solution. (more than one) (10 points)
3. Please give the names and describe the roles of the three electrodes in potentiometry. (15 points)
4. Draw the instrument structure and explain the principle of an UV-Vis spectrometer. (10 points)
5. There are various types of mass spectrometer available nowadays such as quadrupole, magnetic sector, time-of-flight ... etc. Pick just one of mass spectrometry methods and explain how it works. (10 points)
6. Find the $[H^+]$ of 0.01M NaH_2PO_4 solution. (5 points)
 $[K_{a1} = 7.11 \times 10^{-3}, K_{a2} = 6.32 \times 10^{-8}]$
7. Show the structure and explain the principle of a glass electrode for pH measurement. (10 points)