

靜宜大學100學年度碩士班暨碩士在職專班招生考試試題

學系：應用化學系

科目：分析化學

1. List five variables which lead to zone broadening in chromatography? Temperature is one of the variables. (8%)
2. Describe the limits of GC (gas chromatography)? (8%)
3. Describe the reasons why gradient elution is used in liquid chromatography? (6%)
4. Describe the difference between HPLC (high performance liquid chromatography) and CZE (capillary zone electrophoresis)? (8%)
5. Give the theory and instrument for Michelson Interferometer. (10%)
6. Give the theory and instrument for Mass Spectrometry. (10%)
7. Give the light source for AAS (atomic absorption spectrometry). (5%)
8. Compare IR (infrared spectrometry) to Raman spectrometry. (5%)
9. Calculate the pH of a buffer that is 0.050 M in potassium hydrogen phthalate and 0.150 M in potassium phthalate. (For phthalic acid, $pK_{a1}=1.12\times 10^{-3}$, $pK_{a2}=3.91\times 10^{-6}$) (10%)
10. What do you use statistical calculation, such as t -test, F -test, and Q -test, to sharpen your judgments concerning the quality of experiment measurements? (10%)
11. Describe and differentiate the three calibration methods, that is external calibration, internal calibration, standard addition calibration. (10%)
12. Compare SPME (solid-phase microextraction) to LPME (liquid-phase microextraction). (10%)