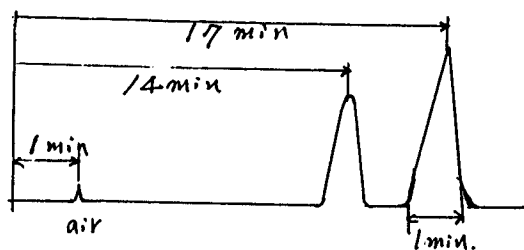


- Exactly 4.57g of $\text{BaCl}_2 \cdot 2\text{H}_2\text{O}$ (gfw=244) were dissolved in water and diluted to exactly 250 ml in a volumetric flask. What is the formal concentration of $\text{BaCl}_2 \cdot 2\text{H}_2\text{O}$ and Cl^- ?
- What is the pH of a solution that is 0.400F in formic acid and 1.00F in sodium formate? For which $K_a = 1.77 \times 10^{-4}$
- What is the formal concentration of a potassium hydroxide that has a titer of 3.50 mg $\text{H}_2\text{SO}_4/\text{ml}$? ($K = 19$, atomic weight)
- Even at constant temperature and in specified solvent, it is sometimes found that the absorptivity may not be truly constant. If the absorbance A is plotted against concentration, some degree of curvature is found in high concentration region, why?
- How to determine the equilibrium constant pK_a of an acid-base by UV-Visible Spectroscopy?
- Point out the differences between Infrared spectral method and Raman spectral method?
- How to determine the chemical shift δ and τ in NMR analysis? if a peak at 180cps from TMS at an applied frequency of 60 Mc.
- Illustrate the Bragg Equation on X-ray diffraction analysis?
- Explain briefly the principle of mass spectroscopy.?
- The separation shown below was obtained with a 3 meter column. What is the minimum column length necessary to obtain a resolution of 1.5?



(以上每題各10分)