5/6 (6)

國立成功大學76學年度 研究所碩士班入學 考試(分析化學試題) 共一頁 第一頁

(1) Explain the functions of the manganese sulfate titrating solution in the titration of Fe^{2+} with MnO_4^-. (10%)

(2) Describe about the difference of polarimetry and polarography. (10%)

(3) Write out the Ilkovic equation and definition of every symbol in the equation. (10%)

(4) How to determine the ideal gas flow velocity in using of the gas chromatograph? Describe briefly. (10%)

(5) Define T_1 and T_2 of relaxtion time in NMR, and compare the using of them. (15%)

(6) A sample of fuming sulfuric acid weighing 1.000 g when dissolved in water requires 21.41 ml of 1.000 N NaOH solution for neutralization. What is the percentage of each component in the sample?

S = 32.06, O = 16.00, H = 1.00 (15%)

(7) If, at the equivalence point in the titration of a certain solution of acetic acid, pH = 9.10, what emf would be given by the cell made up of this solution in contact with a hydrogen electrode and a normal Calomel half-cell?

E° of normal colomel electrode = 0.285 volt at 25°C (15%)

(8) A sample of impure strontium chloride weighs 0.5500 g. After the addition of 50.00 ml of 0.2200 N $AgNO_3$ and shaking enough with nitrobenzene, 25.60 ml of 0.2800 N KCNS was needed to titrate the silver.

(a) What is the percentage of $SrCl_2$ in the sample?

(b) What is the function of nitrobenzene?

(Sr = 87.62, Cl = 35.45) (15%)