淡江大學九十二學年度碩士班招生考試試題

系別：化學學系　　科目：分 析 化 學

准帶項目請打「○」否則打「×」
簡單型計算機
○

本試題共 2 頁

本試題雙面印製

1. Select the following ionization method(s) that can be applied for protein analysis? (1) FI (Field Ionization) (2) MALD (matrix assisted laser desorption) (3) ESI (Electrospray Ionization) (4) EI (Electronic Ionization) (5) CI (Chemical Ionization) (6) FD (Field Desorption). (10%)
2. What do you know about the Nobel Prize of Chemistry of 2002? (10%)
3. List the major components of a monochromator. (10%)
4. Calculate the frequency in hertz and wavenumber for the line at 694.3 nm produced by a laser. (10%)
5. Define: Larmor frequency. (10%)
6. How can chemical shift lines be differentiated from spin-spin splitting lines? (10%)
7. Define: heavy atom effect. (10%)
8. Compare photomultiplier tube (PMT) with electromultiplier tube. (10%)
9. Compare gradient elution with isocratic elution.(10%)
10. Calculate the pH of a solution that is 0.200 M in NH_3 and 0.300 M in NH_4Cl. The acid dissociation constant for NH_4^+ is 5.70×10^{-10}. (10%)

注意背面尚有試題

淡江大學九十二學年度碩士班招生考試試題

系別：化學學系　　科目：分 析 化 學

准帶項目請打「○」否則打「×」
簡單型計算機
○

Important Physical Constants

Constant	Symbol	Value
Speed of light (*vacuo*)	c	2.99792×10^{8} ms^{-1}
Planck constant	h	6.62608×10^{-34} J s
Avogadro number	N	6.022137×10^{23} particles mol^{-1}
Faraday constant	F	96485.31 C mol^{-1}
Gas constant	R	$8.31451 \times$ J K^{-1} mol^{-1}
		0.0820578 L atm K^{-1} mol^{-1}
Boltzmann constant	k	1.38066×10^{-23} J K^{-1}
Rest mass of the electron	m_e	9.10939×10^{-31} kg
Electronic charge	e	$-1.602177 \times 10^{-19}$ C

Energy Conversion Factors

	Joules	Ergs	Calories	Liter Atmosphere	Electron Volts
1 joule =	1	10^{7}	2.3901×10^{-1}	9.8687×10^{-3}	6.2418×10^{18}
1 erg =	10^{-7}	1	2.3901×10^{-8}	9.8687×10^{-10}	6.2418×10^{11}
1 calorie =	4.1840	4.1840×10^{7}	1	4.1291×10^{-2}	2.6116×10^{19}
1 liter atmosphere =	1.0133×10^{2}	1.0133×10^{9}	24.218	1	6.3248×10^{20}
1 electron volt =	1.6021×10^{-19}	1.6021×10^{-12}	3.8291×10^{-20}	1.5811×10^{-21}	1