淡江大學 102 學年度碩士班招生考試試題

系別：化學學系　　　　　　科目：儀器分析

考試日期：3月10日（星期日）第3節　　　　本試題共　5　大題，　1　頁

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1. A series of responses is shown in the following table:
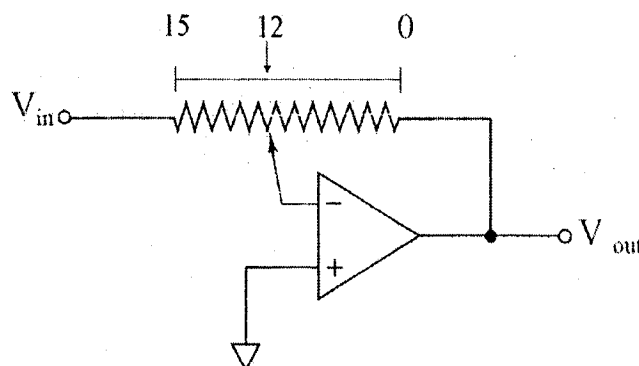
Concentration of the sample	Blank	Blank	Blank	Blank	2.0mM	4.8mM (LOL)	Unknown sample
Signal (mA)	0.12	0.14	0.15	0.10	5.12	12.11	6.86

Please estimate:

a) Sensitivity,

b) Standard deviation of blank

c) Detection limit (S/N=3)

d) Estimate the concentration of unknown sample.

2.

a) Please find out the relationship between Vo and Vi of the following circuit.

b) Design a circuit having an output of　$-V_o = 3V_1 - 6V_2 + 5V_3$

3. Calculation

  a) Please convert the transmittance of 18.8 % into an adsorption unit.

  b) $Ag^+ + e^- \rightarrow Ag_{(s)}$　　$E^0 = +0.799$ volts

  Caculate the reduction potential for $AgCl + e^- \rightarrow Ag_{(s)} + Cl^-$ in a 3M KCl solution. (Assume the Ksp of AgCl is 1.82×10^{-9})

4. Please describe all possible radiation sources for atomic adsorption

5. Please describe the detail principle for the following ion sources in Mass spectrometer

a) Electrospray ionization

b) MALDI