

بسم الله الرحمن الرحيم

الزمن: ساعتان

الشعبتان: ٢٢٣٢ & ٢٢٢٥

قسم الكيمياء \_ كلية العلوم

جامعة الملك سعود

الامتحان النهائي في المقرر ٣٥٠ كيم ( التحليل الآلي لطلاب الهندسة الكيميائية )

الفصل الدراسي الأول للعام الجامعي ١٤٢٨-١٤٢٩ هـ

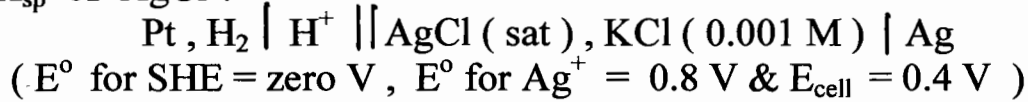
مدرس المقرر: د. عبد الله محمد عزيز الرحمن

( Q / ONE ) ( 20 points )

( A ) Sketch & explain the following :-

- ( 1 ) An Arc –spark emission spectrograph ?
- ( 2 ) A liquid ion – exchange membrane electrode ?
- ( 3 ) A flow diagram for the determination of ( Ca ) in water by FIA-Spectrometry ?

( B ) Deduce the cell reaction of the following cell and then calculate the  $K_{sp}$  of AgCl ?



( Q / TWO ) ( 30 points )

Describe briefly the following :-

- ( 1 ) A photomultiplier tube ?
- ( 2 ) The formation of atoms in flame ?
- ( 3 ) Determination of ( Al ) by molecular absorption spectrometry ?
- ( 4 ) A neutral carrier electrode ?
- ( 5 ) Determination of ( KCN ) by constant current coulometry ?
- ( 6 ) The difference between Fluorescence and Phosphorescence ?
- ( 7 ) The methylene blue method for the determination of sulphur in crude oil ?
- ( 8 ) The crystalline ion- selective electrode ?
- ( 9 ) The chemical deviation and its effect on Beer's law ?
- ( 10 ) Kjeldahl-Indophenol method for the determination of amides ?

Good Luck