

بسم الله الرحمن الرحيم

الزمن : ساعتان

الشعبتان : ٢٢٢٥ ، ٢٢٣٢

قسم الكيمياء – كلية العلوم

جامعة الملك سعود

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

الفصل الدراسي الأول للعام الجامعي ١٤٢٧ / ١٤٢٨ هـ

مدرس المقرر : د. عبد الله بن محمد عزيز الرحمن

(Q1) (25 points)

Sketch & explain the following :-

- 1- The operation mechanism of a double – beam spectrometer, employing two choppers ?
- 2- The formation of free atoms in flame, by using the premix burner ?
- 3- Determination of (Al) in one of its ores, by FIA – Spectrometry ?
- 4- The fluorescence mechanism of the aromatic compounds ?
- 5- The solid – state membrane electrodes ?

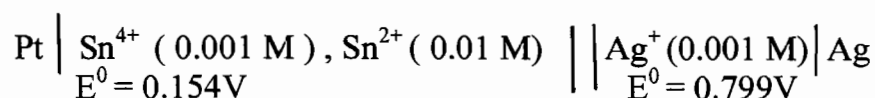
(Q 2) ( A = 18 Points & B = 7 Points )

( A ) Describe briefly the following :

- 1- The spectral interferences in flame atomic emission spectrometry?
- 2- Determination of KCN & KMnO<sub>4</sub> by coulometric titrations ?
- 3- The essential components of a polarographic cell ?
- 4- Determination of ( S ) in crude oil by the methylene blue method ?
- 5- The chemical deviation ? Give two different examples ?
- 6- The neutral carrier electrodes ?

( B ) Deduce the cell reaction of the following cell , and then calculate the

( K<sub>eq</sub> ) & the cell potential ( E<sub>cell</sub> ) :



Good Luck