



EASERN UNIVERSITY, SRI LANKA

SECOND EXAMINATION IN SCIENCE 2007/2008 and 2008/2009

FIRST SEMESTER (REPEAT)

EXTCH 202 ANALYTICAL CHEMISTRY

Answers all questions

Time: One hour

- (a) Explain the principle involve in the solvent extraction
- (b) V ml of aqueous solution (V_{aq}) which contains A_0 mol of solute X is brought into contact with V ml of immiscible organic solvents (V_{org}). At equilibrium A_1 mol of solute X remains in the aqueous layer.

Show that

$$A_1 = \frac{A_0 V_{aq}}{V_{aq} + V_{org} K}$$

Where K is Partition Coefficient of the solute of X between organic layer and aqueous layer

- (c) Give the equation for the number of moles of solute X remaining after 'n' extraction

(d)

Distribution coefficient of the solute X between the organic layer and aqueous layer is 10. A 50.0 ml of 0.125 mol l⁻¹ aqueous solution of X was extracted with 20.0 ml of organic solvent. How many times should it be extracted to reduce the concentration of X in aqueous to 0.005 mol l⁻¹?

(100 Marks)

2.

- (a) Briefly describe the Paper Chromatography and explain the different types of Chromatography with suitable diagrams
- (b) List out the difference between the planar chromatography and Chromatography
- (c) Briefly describe the Gas Chromatography by using a labelled diagram and function/s of each basic component of Gas Chromatography.

(100)

.....End.....