EASTERN UNIVERSITY, SRILANKA
FINAL EXAMINATION IN AGRICULTURE 2003 / 2004
POLLUTANT TRANSFORMATION IN SOILS – ACH 4111

Answer all questions.

Time: 01Hour

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01. a) Briefly discuss the importance of surface charge in relation to cation and anion leaching in soils.

b) Explain the difference between specific and non - specific anion adsorption.

c) Calculate the maximum amount of exchangeable cations (kg/ha) that a soil Can hold to a depth of 5cm if CEC of a soil is 25meq / 100g soil. Bulk density = 0.96 tonne / m^3; 1 mole of calcium = 40g, 1 mole of Magnesium 24g, 1 mole of sodium 23g.

02. a) Describe the importance of following reactions in soils in relation to the specific named pollutants.

(i) Cation Exchange

(ii) Photo chemical degradation

(iii) Leaching

b) Briefly discuss the effect of pH on phosphate fixation.

c) In a copper adsorption isotherm study 1g soil was shaken with 10 ml copper solution.

Shake flask No	1	2	3	4
Added Cu con. (µg / ml)	0	10	20	45
Equilibrium Con. (µg / ml)	0	5	8	12

Find out the amount of copper adsorbed and the % of Cu sorption in shake flask No 3.