

EASTERN UNIVERSITY, SRI LANKA

SECOND YEAR, FIRST SEMESTER EXAMINATION IN AGRICULTURE – 2004/2005

ACH 2101 - SOIL PHYSICAL PROPERTIES (3:30/30)

Answer all questions.

This paper should be answered in English.

Time: 02 hours.

1. Discuss:

- (a) Aggregate formation and its stability.
- (b) Relationship between water film thickness and moisture tension of a soil.

2. (a) Describe the consistency of a clay soil at different moisture levels.

(b) Compare the following:

- i. Infiltration and percolation.
- ii. Spheroidal and Blocky soil structure.

3. (a) What do you understand by the term 'Heat balance' in soil?

(b) A cylindrical core sampler with 8 cm diameter and 14 cm height was used to take soil sample in a field. The wet mass of soil at field moist level is 1150 g. When the soil was allowed to dry in oven, it showed 12 % moisture reduction. Assume the particle density of the soil is 2.65 g cm^{-3} and calculate the following:

- i. Bulk density
- ii. Void ratio
- iii. Saturation ratio
- iv. Air filled porosity

4. Write short notes on followings:

- (a) Factors influencing the soil colour.
- (b) Importance of soil texture.
- (c) Oxidation – reduction potential of a soil.