EASTERN UNIVERSITY, SRI LANKA
THIRD YEAR SECOND SEMESTER EXAMINATION IN AGRICULTURE- 2008/2009
(April/May 2010)
AEN 3201 –WATER MANAGEMENT TECHNIQUES AND METEOROLOGY (1:00/30)

Answer all questions.
Time: Two hours

01. (a) Define the following terms
   i. Saturation capacity
   ii. Hygroscopic water
   iii. Total available water capacity

(b) Define the term Bulk density and state its significance.

(c) A metal cylinder pushed into a loam soil is removed from the field. Soil samples dried in oven. The measured data as follows;
Cylinder height- 5.2cm, Inside diameter of the cylinder – 4.5cm,
Initial weight of soil – 105g and Weight of oven dried soil – 85.3g.
Calculate the bulk density of that soil.

(d) Calculate (i) bulk density (ii) water content on weight basis (mass wetness) and (iii) water content on volume basis (volume wetness) of a soil core of 10cm diameter and 7 cm length weighs 1101.15 g immediately after sampling and 979.05g after oven drying at 105°C.

02. (a) Give the principle of determining Available water capacity

(b) Explain the procedure of determining available water capacity of the soil from field capacity (FC) and permanent wilting point (PWP) using pressure plate apparatus.

(c) Give the procedure of determining field capacity of soil in a field.

03. (a) What are the essential requirements of an agro meteorological field station for making useful meteorological observations?

(b) Briefly explain the crop-soil-climate conditions of a meteorological site.

(c) List out the climatic parameters and Instruments with short descriptions which are used in standard metrological station?

(d) Define and differentiate the terms climate and weather. And briefly explain the role of them in making decision on crop water requirements and irrigation schedule?

(PTO)

04. Briefly discuss the advantages and disadvantages of following issues.

a. Use of recording type of Instruments in meteorological observations.

b. Adaptation of automated weather station.

c. Irrigation scheduling by CROPWAT programme.
