EASTERN UNIVERSITY, SRI LANKA
SECOND YEAR SECOND SEMESTER EXAMINATION IN AGRICULTURE -2009/2010
(Jan/Feb/March 2012)

AEN 2201 – IRRIGATION AND WATER MANAGEMENT (2:30/00)

Answer all questions
Time: 2 hours

01. (a) What do you understand by the following terms;

(i) Net water requirement

(ii) Management Allowable Deficit (MAD)

(iii) Irrigation period

(b) A discharge of 30*lit*/sec is applied to a banana field of size 135m^2. The field capacity of the soil is 15% and the bulk density is 1.2g/cm^3. Moisture content of the soil in the crop root zone before starting irrigation is 8%. The average depth of crop root zone is 130cm. Determine the NIR and duration of irrigation to replenish the root zone moisture to its field capacity.

(c) A soil core was drawn with a core sampler having an inside dimension of 5 cm diameter and 15 cm length from a field two days after irrigation when the soil water was near field capacity. The weight of the core sampler with fresh soil sample was 1.95kg and the weight of the same on oven drying was 1.84 kg. The empty core sampler weighed 1.40kg. Calculate the (i) bulk density of soil (ii) water holding capacity of soil in percent on volume basis.

02. (a) State the importance of the wetting pattern of different soil types and explain the causes for poor wetting pattern during irrigation.

(b) Write short notes on the followings

i. Factors affecting infiltration rate

ii. Criteria for evaluating water quality

03. (a) Explain the factors determining the method of irrigation?

(b) Give the advantages of using parshall flume in measuring water in irrigation ch

(b) Briefly describe about the rectangular weir in measuring discharge at irri channel

04. (a) Give three (03) important formulae used to calculate the velocity of flow in a ch

(b) Give the steps involved in scheduling irrigation.

(c) Determine the (i) Depth of water applied in each irrigation (ii) Gross amount ne for each irrigation and (iii) Schedule the irrigation programme for the growing season, using following data;

FC = 25.1%, PWP = 10.5%, ASG = 1.3, MAD = 50%,

RZ depth = 1.1m, Area = 110 ha,

Duration of cultivation = April 15th to July 15th

ET Crop: April = 4.6mm/day, May = 5.7mm/day, June = 7.6mm/d July = 9.4mm/day,

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