

EASTERN UNIVERSITY, SRI LANKA

SECOND YEAR SECOND SEMESTER EXAMINATION IN AGRICULTURE- 2011/2012

(Jan/Feb-2014)

AE 2201- IRRIGATION AND WATER MANAGEMENT

REPEAT

Answer all questions

Time: Two hours

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- (a) List the factors determining the method of irrigation.
- (b) Briefly describe the advantages and disadvantages of surface irrigation method.
- (c) In a soil test, soil was taken from a field. The total weight and total volume of excavated sample were 1850 g and 900 cm<sup>3</sup> respectively. The weight of the oven-dried mass was 1630 g. If specific gravity of the soil solid is 2.71 g/cm<sup>3</sup>, determine the following;
- Volumetric water content
  - Bulk density
  - Soil porosity
  - Degree of saturation
- (a) What do you understand by the following terms;
- Capillary water
  - Hygroscopic water
  - Field capacity
  - Critical point and depletion level
- (b) Briefly explain the causes for poor wetting pattern in basin irrigation.

(Please Turn Over)

- (c) A stream of 95 lit/sec was diverted into a canal system from a reservoir. The delivery rate to the field was 72 lit /sec. Runoff and deep percolation losses during 8 hours irrigation to wheat crop were  $350 \text{ m}^3$  and  $158 \text{ m}^3$  respectively.

Find the following;

- i. Water conveyance efficiency
- ii. Water application efficiency

3. (a) What are the advantages of irrigation scheduling?

(b) Illustrate the wetting pattern for different soil types in furrow irrigation method.

(c) Explain the factors affecting infiltration rate.

4. (a) Define the term 'Reference Crop Evapotranspiration'.

(b) Briefly discuss the climatic factors affecting the evapotranspiration.

(c) List the causes of water logging and development of high water table.

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