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University Examinations 2013/2014

THIRD YEAR, FIRST SEMESTER EXAMINATION FOR DIPLOMA IN CIVIL
ENGINEERING

ECV 0243: ENGINEERING IRRIGATION I

DATE: APRIL 2014

TIME: 1 ½ HOURS

INSTRUCTIONS: Answer question *one* and any other *two* questions

QUESTION ONE – (30 MARKS)

- (a) Define irrigation. (2 Marks)
- (b) Outline four benefit of irrigation. (8 Marks)
- (c) Discuss four methods of irrigation systems. (20 Marks)

QUESTION TWO – (15 MARKS)

- (a) Discuss three factors that influence the choice of an irrigation method. (9 Marks)
- (b) Discuss four factors that affect the water requirement of crops. (6 Marks)

QUESTION THREE – (15 MARKS)

- (a) Discuss the following terms as used in irrigation:
 - (i) Gross command area (GCA) (3 Marks)
 - (ii) Duty and Delta (3 Marks)
 - (iii) Overlap allowance (3 Marks)
- (b) A channel is to be designed for irrigating 5000 hectares in early crop and 4000 hectares in late crop. The water requirement for the early and late cropping are 60cm and 25cm respectively. The watering period for early crop is 3 weeks and for late cropping is 4

weeks. Determine the discharge of the channel for which it is to be designed.

(6 Marks)

QUESTION FOUR – (15 MARKS)

- (a) By use of a diagram explain how infiltration rate can be carried out in a rice field by use of a cylinder infiltrometer. (10 Marks)
- (b) Define field capacity and briefly explain how it is obtained in the field. (5 Marks)