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University Examinations 2013/2014

THIRD YEAR, SECOND SEMESTER EXAMINATION FOR DIPLOMA IN CIVIL
ENGINEERING

ECV 0251: IRRIGATION ENGINEERING II

DATE: APRIL 2014

TIME: 1 ½ HOURS

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

QUESTION ONE – (30 MARKS)

- (a) In selection of a site for construction of a dam certain investigation work need to be carried out briefly explain three of these investigations. (12 Marks)
- (b) Define a spillway and explain four reasons as to why spillways are provided on the dams. (6 Marks)
- (c) Using a diagram explain two type of spillway. (8 Marks)
- (d) List five factors considered when selecting a dam site. (4 Marks)

QUESTION TWO – (15 MARKS)

- (a) Describe the phenomenon of water logging and list three effect if has on agricultural development. (6 Marks)
- (b) List ten causes of water logging. (5 Marks)
- (c) Explain four methods of land reclamation. (4 Marks)

QUESTION THREE – (15 MARKS)

- (d) Define the following terms as used in designing of irrigation canals;
 - (i) Coefficient if rugosity (N) (2 Marks)

- (ii) Mean velocity (2 Marks)
- (iii) Critical velocity (2 Marks)
- (iv) Regime channel (2 Marks)
- (v) Economical section (2 Marks)
- (e) Design an irrigation canal with the following data
 - (i) Discharge of the canal = $24\text{m}^3/\text{s}$
 - (ii) Permissible mean velocity = 0.80m/s
 - (iii) Bed slope = 1 in 5000
 - (iv) Side slope 1:1
 - (v) Chezy's constant (c) = 44 (5 Marks)

QUESTION FOUR – (15 MARKS)

- (a) Discuss two factors considered when choosing the type of irrigation to use. (5 Marks)
- (b) Stating where used discuss tow methods of irrigation system. (4 Marks)
- (c) Discuss preventive and curative measures of watershed management. (6 Marks)