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Total No. of Pages : 02

Total No. of Questions : 09

B.Tech.(CE) (2012 to 2017) (Sem.-4)

**IRRIGATION ENGINEERING-I**

Subject Code : BTCE-405

M.Code : 56087

Time : 3 Hrs.

Max. Marks : 60

**INSTRUCTION TO CANDIDATES :**

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

**SECTION-A****Q1. Answer briefly :**

- a) Define Intensity of Irrigation.
- b) Give relationship between duty, delta and base period.
- c) Differentiate between alluvial and non alluvial canals.
- d) Name various types of canal lining.
- e) What do you mean by Regime channel?
- f) What are the causes of water-logging?
- g) Differentiate between initial regime and final regime.
- h) What are French drains?
- i) What is a watershed canal and what are the advantages of such a canal?
- j) What do you understand by safe yield of a Tubewell?

**SECTION-B**

- Q2. Derive Thiem's formulae for unconfined aquifer.
- Q3. What is meant by duty of water? Explain the influence of several factors which affect the duty. What are the different ways in which duty can be expressed?
- Q4. Explain different factors affecting water requirement by crops.
- Q5. Assuming the side slope 1:1, find the bed width  $B$  and the depth ( $D$ ) of flow of an irrigation canal to carry an discharge of  $21 \text{ m}^3/\text{sec}$  with a velocity of  $0.75 \text{ m/sec}$ . Bed slope is 1 in 5000 and value of chezy's constant  $C = 42$ .
- Q6. Discuss the factors affecting Seepage losses in irrigation channels. Also explain the two conditions of seepage from irrigation channels.

**SECTION-C**

- Q7. Describe briefly the necessity and importance of irrigation works in our country. What are the different types of irrigation? Write brief notes on each of them.
- Q8. a) What is a strainer and what are the qualities of a good strainer? Enumerate the different types of strainers.
- b) Design a lined canal to carry 100 cumec discharge with the following data :
- i) Angle of repose of the soil =  $45^\circ$
  - ii) Lacey's silt factor = 1.2
  - iii)  $B/D$  ratio = 3
  - iv) Value of  $N = 0.018$
- Q9. What is tubewell irrigation? What are the various types of tubewells? Describe the widely used type of a tubewell with a neat sketch.

**NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.**