

**M. TECH.-I (CIVIL-HYDRAULIC ENGINEERING) (CBCS –
2015 COURSE) : SUMMER - 2018**

SUBJECT : IRRIGATION WATER MANAGEMENT

Day : **Wednesday**
Date : **30/05/2018**

S-2018-2967

Time : **11.00 AM TO 02.00 PM**
Max. Marks : 60

N. B. :

- 1) All questions are **COMPULSORY**.
 - 2) Figures to the right indicate **FULL** marks.
 - 3) Answers to both the sections should be written in **SEPARATE** answer books.
 - 4) Draw neat and labeled diagram **WHEREVER** necessary.
 - 5) Use of non-programmable calculator is **ALLOWED**.
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SECTION - I

- Q. 1**
- a) Classify soil water and give characteristics of different kinds of soil water. **(05)**
 - b) State and explain basic physical properties of soil that influence soil water plant relationship. **(05)**

OR

- a) Explain in brief different types of soils in India and their characteristics. **(05)**
- b) What is consumptive use? Explain Penman's method of estimation of consumptive use. **(05)**

- Q. 2**
- Describe border method of irrigation with a neat sketch layout plan. State the various types of crops for which this method is suitable. Give important design criteria. **(10)**

OR

- a) Explain with sketch layout of furrow method of irrigation. **(05)**
- b) Determine the mean depth of irrigation in a furrow 60 m long and spaced 50 cm apart with an initial flow of 1.5 l/s for a period of 40 minutes. The stream was then reduced to 0.5 l/s after it reached the tail end of furrow and irrigation was continued for another 45 minutes. **(05)**

- Q. 3**
- Explain with a neat sketch various components of sprinkler irrigation. Explain various design parameters of sprinkler irrigation. **(10)**

OR

- Explain the components of drip irrigation system with a neat sketch. State important parameters of hydraulic design of laterals. **(10)**

P. T. O.

SECTION - II

- Q. 4** a) Explain with a neat sketch use of parshall flumes for measurement of canal irrigation water. (05)
- b) Describe the submerged and free surface orifice with proper sketches. Give the formulae for measurement of flow. (05)

OR

- a) What is water conveyance efficiency? Discuss the factors on which this efficiency depends. (05)
- b) Explain the factors that influence water use efficiency. (05)

- Q. 5** How do the soil characteristics influence the frequency, interval and depth of irrigation? Explain. (10)

OR

Explain the important components of under ground pipeline distribution system of irrigation. (10)

- Q. 6** a) Classify irrigation water based on amount and nature of salts present. (05)
- b) Explain any one method of reclamation of saline soils. (05)

OR

- a) How does the sodium, calcium and magnesium ion influence the quality rating of irrigation water? (05)
- b) How does the quality of irrigation water deteriorate? (05)

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