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G143

B. Tech. EXAMINATION, 2020

(Seventh Semester)

(B Scheme)

(Re-appear Only)

IRRIGATION ENGINEERING–I

CE405B

CE

Time : 3 *Hours*] [*Maximum Marks :* 75

Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

Note : Attempt *Five* questions in all, selecting at least *one* question from each Unit. All questions carry equal marks. Assume any missing data suitably.

Unit I

1. (a) Why is it necessary to do irrigation ? Discuss its disadvantages. **4**

(b) What is Consumptive use of water ? **3**

(c) Differentiate among the following : **8**

(i) Capillary Water and Gravitational Water

(ii) Field Capacity and Permanent wilting point.

2. (a) Briefly describe check basin method of irrigation. **3**

(b) An irrigation canal has gross commanded area of 50,000 hectares out of which 80% is culturable irrigation. In a year there are two seasons of crop. The intenisty of irrigation for the first season is 30% and for the second season is 65%. Find the discharge required at the head of the canal if the duty at its head is 500 hectares/cumecs for the first season and 1500 hectares/cumecs for the second season. **12**

Unit II

3. Design an irrigation channel using Kennedy's Theory to carry a discharge of 25 cumecs with critical velocity ratio and Manning's coefficient as 1.0 and 0.022 respectively. Take side slopes = 1 H : 2V and bed slope = 1 in 6000. **15**

4. Draw a neat labelled sketch of an APM outlet and describe its working. **15**

Unit III

5. (a) List the various types of river training works. **5**

(b) Explain the cutoffs and its design procedure. **10**

6. What is meant by Water Logging ? Discuss various methods of land reclamation. **15**

Unit IV

7. A well penetrates fully a 15 m thick water bearing stratum of medium sand having coefficient of permeability of 0.005 m/sec and radius of influence of 300 m. The well radius is 15 cm and is to be worked under a draw-down of 5 m at the well face. Calculate the discharge from the well. What will be the percentage increase in the discharge if the radius of the well is doubled ? **15**

8. Explain the following : **15**

(a) Specific yield

(b) Specific capacity

(c) Storage coefficient.