

**7E7061**

Roll No. \_\_\_\_\_

Total No. of Pages : 3

**7E7061****B.Tech. VII- Semester(Main&Back) Examination, November - 2019****Civil Engineering****7CE1A Water Resources Engineering - I****Time : 3 Hours****Maximum Marks : 80****Min. Passing Marks : 26****Instructions to Candidates:**

*Attempt any five questions, selecting one question from each unit. All questions carry equal marks. (Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly). Units of quantities used/calculated must be stated clearly.*

**UNIT - I**

1. a) Write a short note on advantages and disadvantages of Irrigation. (8)
- b) What are the various factors on which the consumptive use of water depends. Explain them. (8)

**(OR)**

1. a) After how many days will you supply water to soil in order to ensure irrigation for following data of soil  
Field capacity of soil = 27%  
Permanent wilting point = 14%  
Dry density of soil = 15 kN/m<sup>3</sup>.  
Effective depth of root zone = 75 cm  
Daily consumptive use of water = 11 mm. (8)
- b) What are the various types of irrigation efficiencies. Explain. (8)

**UNIT - II**

2. a) Differentiate clearly between Kennedy's and Lacey's theory. (8)
- b) Draw cross sections of channels in cutting and filling and explain the purpose of various components involved. (8)

**(OR)****[Contd.]****(1)**

2. a) Design a Lacey's regime channel flowing through material of average diameter 0.328 mm for following data  
Culturable command area = 100000 hectares  
Intensity of irrigation Rabi = 40% Kharif = 30%.  
ODF Rabi 1500 hec/Cumec  
Kharif = 800 hec/Cumec. Assume  
Conveyance losses = 10%. (8)

b) What are the various types of losses in Channel. Explain. (8)

#### UNIT - III

3. a) What are the various components of canal Regulation work. Explain. (8)

b) Write a short note on river training and bank protection work. (8)

(OR)

3. a) What are the various stages of river. Explain their significance in relation to irrigation Engg. (8)

b) Describe the Tractive force approach for channel design. (8)

#### UNIT - IV

4. a) What are the various types of channel linings. Explain. (8)

b) Explain the various types of tube wells. (8)

(OR)

4. a) What are the ill effects of water logging Explain. (8)

b) How the water logging phenomenon can be prevented. Explain. (8)

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#### UNIT - V

5. a) What are the various method of estimation of average rainfall over a basin. (8)

b) Explain following.

i) Depth Area duration Curves

ii) Double Mass curve of rainfall (2×4=8)

(OR)

- a) Describe Infiltration with its equation Also state and explain factors affecting Infiltration. (8)

b) From the given 6 hr UH Derive 9 H UH for same catchment.

(8)

✓ Time in (hrs)

Ordinates of 6 hrs (UH) (Cumecs)

00	0
03	9
06	20
09	35
12	49
15	35
18	28
21	22
24	17
27	12
30	9
33	6
36	3
39	2
42	0

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