

No. of Printed Pages : 04

Roll No.

G143

B. Tech. EXAMINATION, 2020

(Seventh Semester)

(B Scheme) (Main & Re-appear)

(CE)

CE405B

IRRIGATION ENGINEERING-I

Time : 2½ 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 *Four* questions in all. All questions carry equal marks. Assume any missing data suitably.

(5)M-G143

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1. (a) Explain the factors affecting the crop water requirements.
(b) Distinguish among delta, duty and base period.
(c) Briefly describe sprinkler and drip irrigation.
2. (a) Determine the frequency of irrigation from the following data :
 - (i) Field capacity of soil = 30%
 - (ii) Permanent wilting point = 15%
 - (iii) Density of soil = 1.5 g/cm^3
 - (iv) Depth of root zone = 70 cm
 - (v) Daily consumptive use of water = 17 mm
(b) What do you understand by culturable command area ?
3. Find the balancing depth for a canal section having the following data :
 - (i) Base width of canal = 15 m

- (ii) Side slope in cutting = 1 : 1
 - (iii) Side slope in banking = 2 : 1
 - (iv) Top width of bank = 3 m
 - (v) Height of bank above ground level = 3 m
4. Explain the terms proportionality, setting and sensitivity of outlet.
5. (a) What is guide bank ? Explain with the help of labeled neat sketch.
- (b) Distinguish among bank pitching, pitched island and launching apron.
6. Design lined canal to carry 200 cumec discharge with the following data :
- (i) Angle of repose of soil = 45°
 - (ii) Lacey's silt factor = 2.2
 - (iii) B/D ratio = 3 where B = Bottom width and D = Depth of flow
 - (iv) Mannings' N = 0.018

7. Using Darcy's law develop the equation for the steady flow in a confined aquifer.
8. A tube well of diameter 30 cm penetrates fully an unconfined aquifer. Determine the discharge of the well having draw down of 3 m at well and coefficient of permeability as 0.05 m/s. Take radius of circle of influence = 300 m and effective length of strainer = 10.5 m.

