

5E1345

Roll No.

Total No of Pages: 2

5E1345

B. Tech. V - Sem. (Main / Back) Exam., Feb.-March - 2021

PCC/PEC Civil Engineering

5CE4 - 05 Water Resource Engineering

Time: 2 Hours

[To be converted as per scheme]

Max. Marks: 65

Min. Marks: 23

*Instructions to Candidates:*

*Attempt all five questions from Part A, four questions out of six questions from Part B and one questions out of three from Part C.*

*Schematic diagrams must be shown wherever necessary. Any data you feel missing may suitably be assumed and stated clearly. Units of quantities used /calculated must be stated clearly.*

*Use of following supporting material is permitted during examination. (Mentioned in form No. 205)*

1. NIL

2. NIL

**PART - A**

**(Answer should be given up to 25 words only)**

**[5×2=10]**

**All questions are compulsory**

- Q.1 Define Hydrological cycle. [2]
- Q.2 Define consumptive use of water. [2]
- Q.3 Enumerate various factors affecting duty. [2]
- Q.4 Write the necessity of cross drainage structures. [2]
- Q.5 Describe the Phreatic line. [2]

## PART - B

(Analytical/Problem solving questions)

[4×10=40]

Attempt any four questions

- Q.1 Write the drawbacks in Kennedy's theory. [10]
- Q.2 Draw a neat diagram for a diversion Headwork. [10]
- Q.3 Describe Khosla's theory. [10]
- Q.4 Discuss various modes of failure of a gravity dam. [10]
- Q.5 Discuss various types of tube wells. [10]
- Q.6 Write the various uses of Unit Hydrograph. [10]

## PART - C

(Descriptive/Analytical/Problem Solving/Design Questions)

[1×15=15]

Attempt any one questions

- Q.1 What are Lacey's basic regime equations? Starting from the equations derive following equations - [15]
- (a) Wetted Perimeter
  - (b) Hydraulic Radius
  - (c) Bed Slope
- Q.2 A canal has a culturable commanded area of 1,00,000 ha. The intensities of irrigation for Kharif (Rice), Rabi (Wheat) and Sugarcane are respectively 20%, 30% and 10%. The consumptive use of water for the three crops is as under - [15]
- (a) Rice: July = 21cm, August = 24 cm, September = 12 cm, October = 12 cm.
  - (b) Wheat: December = 9cm, January = 9cm, February = 9cm, March = 9cm.
  - (c) Sugarcane: November = 6cm, December to April = 9cm every month, May = 12cm.
- Q.3 Design an irrigation channel by Kennedy's theory to carry a discharge of 5 cumecs. Take  $m = 1.0$ ,  $N = 0.0225$  and B/D ratio = 4.40. [15]
-