Q.P. Code: 16CE120 **R16**

Reg. No: | | | | | | | | | | |

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR

(AUTONOMOUS)

B.Tech III Year I Semester Supplementary Examinations Feb-2021

WATER RESOURCE ENGINEERING - I

(Civil Engineering)

Time: 3 hours Max. Marks: 60

(Answer all Five Units **5 x 12 = 60** Marks)

UNIT-I

1 Describe various methods of computing average rainfall over a basin. **12M**

OR

2 Describe the various methods of missing rainfall data. **12M**

UNIT-II

3 What do you understand by unit hydrograph? How is it derived? Explain its use in construction of flood hydrograph resulting from two or more periods of rainfall. **12M**

OR

4 The infiltration capacity is a basin represented by Horton's equation as $f=3+e^{-2t}$. Where f is in cm/hr, time is in hours. Assuming the infiltration to take place at capacity rates in a storm of 60min duration. Estimate the depth of infiltration.
a) The first 30min, b) Second 30min. **12M**

UNIT-III

5 Explain the method of determining the coefficient of transmissibility of a confined aquifer by pumping out test. How can this method be extended for unconfined aquifer? **12M**

OR

6 During a recuperation test, the water in an open well was depressed by pumping by 2.5 m and it recuperated 1.8 m in 80 minutes. Find a) Yield from a well of 4 m diameter under a depression of 3 m, b) the diameter of well to yield 8 L/s under a depression of 2 m. **12M**

UNIT-IV

7 What are the factors affecting duty? How can duty be improved? **12M**

OR

8 A water course commands an irrigated area 1000 hectares. The intensity of irrigation of rice, crop takes 15 days and during transplantation period, total depth of water required by the crop on the field is 500 mm. During the transplantation period, the useful rain falling on the field is 120 mm. Find the duty of irrigation water for crop on the field during transplantation at the head of the field and also at the head of the water course, assuming loss of water to be 20% in the water course. Also, calculate the discharge required in the water course. **12M**

UNIT-V

9 Explain Lacey's silt theory. **12M**

OR

10 Using lacey's theory, design a irrigation channel for the following data: **12M**
Discharge Q= 50 cumecs, Silt factor f=1, Side slopes=0.5:1

***** END *****