Code No: 115AC **R13**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B.Tech III Year I Semester Examinations, February/March – 2016
WATER RESOURCES ENGINEERING - I
(Common to CE, CEE)

Time: 3 hours **Max. Marks: 75**

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A.
Part B consists of 5 Units. Answer any one full question from each unit.
Each question carries 10 marks and may have a, b, c as sub questions.

Part- A

(25 Marks)

1.a) Distinguish between rainfall mass curve and Hyetograph. [2]
b) Draw and explain runoff over a catchment. [3]
c) What is meant by complex storm and isolated storm? [2]
d) Explain the need for separation of base flow. [3]
e) Explain perennial and intermittent streams. [2]
f) Define radius of influence, yield of a well and well interference. [3]
g) Explain advantages and disadvantages of Irrigation. [2]
h) Differentiate between Field capacity and Permanent wilting Point. [3]
i) Explain what stage discharge curve is. [2]
j) Explain the features of SCS curve number method. [3]

Part-B

(50 Marks)

2.a) Describe different types and forms of precipitation. [5+5]
b) With a neat sketch, explain principle and working of Weighing bucket type rain gauge.

OR

3.a) How is the double mass curve technique used to check the consistency and adjust the rainfall record at a suspicious station?
b) Explain the different methods of finding average depth of rainfall over a basin. [5+5]

4.a) Discuss different methods of separation of base flow.
b) Explain how UH is derived for a complex storm. [5+5]

OR

5.a) How do you derive D hr UH? Explain with the aid of sketches.
b) Describe synthetic unit hydrograph with neat sketches. [5+5]

6.a) Write short notes on
(i) Well efficiency (ii) Interference among wells
(iii) Artesian-gravity wells (iv) Safe yield.
b) A tube well having a diameter of 15 cm fully penetrates a confined aquifer of thickness 10m. The discharge from the well at a drawdown of 8 m is 80 lps. Determine the coefficient of permeability and the transmissibility of the aquifer. Take the radius of influence as 300 m. [5+5]

OR

7.a) Discuss different types of well construction along with their suitability.

b) Describe with neat sketches, radial flow to wells in both confined and unconfined aquifers. [5+5]

8.a) Compare and contrast drip and sprinkler irrigation.

b) Describe different types of soil moisture conditions and their significance. [5+5]

OR

9.a) What is water logging? What are the remedial measures of water logging?

b) Discuss different Indian agriculture soils along with their suitability for different crops. [5+5]

10.a) Compare and contrast Kennedy's and Lacey's theory.

b) Explain canal lining with different durable materials. [5+5]

OR

11.a) Explain how the stream flow is measured.

b) Discuss the classification of canals in detail. [5+5]

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