

R09**Code: 9A01503**

B.Tech III Year I Semester (R09) Supplementary Examinations June 2016

WATER RESOURCES ENGINEERING – I

(Civil Engineering)

Time: 3 hours

Max Marks: 70

Answer any FIVE questions
All questions carry equal marks

- 1 (a) What are the various types of precipitation?
(b) Explain Tipping bucket type rain gauge.
- 2 (a) What is meant by evaporation and list the various factors which affect evaporation?
(b) Explain Penman's equation.
- 3 What is meant by runoff? Describe the various factors which affect runoff.
- 4 (a) What is S-curve? Why is it used?
(b) Given below are the ordinates of a 4-h unit hydrograph. Derive the ordinates of a 12-h unit hydrograph for the same catchment.

Col(1)	0	4	8	12	16	20	24	28	32	36	40	44
Col(2)	0	20	80	130	150	130	90	52	27	15	5	0

Here Col(1) indicates Time(h)

And Col (2) is in m^3/s . Use S-Curve technique.

- 5 (a) Define porosity, specific yield and specific retention and obtain relation between them.
(b) A 300 mm diameter well penetrates 25 m below the static water-table. After 24 hours of pumping at 6000 liters/minute, the water table in a test well at 90 m is lowered by 0.53 m and in a well 30 m away the drawdown is 1.11 m. What is the transmissibility of the aquifer?
- 6 (a) Write a brief note on 'History of development of irrigation in India'.
(b) What is Soil Fertility? Explain how Soil Fertility can be maintained.
- 7 (a) Discuss different methods for the classification of crops. Mention the crops in each type.
(b) What is consumptive use of water? How would you estimate the consumption of water?
- 8 (a) How irrigation canals are classified? Explain.
(b) What do you understand by Lacey's initial and final regime conditions?
