

R09

Code: 9A01503

III B. Tech I Semester (R09) Supplementary Examinations, May 2012

WATER RESOURCES ENGINEERING I

(Civil Engineering)

Time: 3 hours

Max Marks: 70

Answer any FIVE questions
All questions carry equal marks

- 1 Explain the various types and forms of precipitation.
- 2 How do you measure evaporation by various methods?
- 3 What is meant by runoff and describe the various factors which affect runoff?
- 4 (a) What is a unit hydrograph? List the assumptions involved in the unit hydrograph theory.
(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 .

- 5 (a) Briefly explain role of ground water in water resources development in the country.
(b) A 400 mm diameter well fully penetrates a confined aquifer of permeability 40m/day. The length of the strainer is 20 m. Under steady state of pumping the discharge from the well was 1500 liters per minute. Compute the drawdown at the well if the radius of influence of the well is 400 m.
- 6 (a) What are the measures to be taken when poor quality water is used for irrigation purpose?
(b) What are the effects of salts on the crop? What are the main causes of salinity and alkalinity of soils? How would you reclaim a salt affected land?
- 7 (a) How do the soil characteristics influence the frequency, interval and depth of irrigation? Discuss the factors influencing the frequency of irrigation.
(b) The left canal of a tank irrigation scheme carries a discharge of 10 cumecs and has a culturable commanded area of 800 hectares. The intensity of rabbi crop is 70% and the base period is 110 days. The right canal of the scheme carries a discharge of 24 cumecs and has culturable commanded area of 15000 hectares. The intensity of rabbi crop is 8% and the base period is 110 days. Compare the efficiency of the two canal systems.
- 8 (a) Compare the Silt theories of Kennedy and Lacey.
(b) Discuss the maintenance of unlined irrigation canals.
