

R07

Code: R7310104

III B. Tech I Semester (R07) Supplementary Examinations, May 2012

WATER RESOURCES ENGINEERING - I

(Civil Engineering)

Time: 3 hours

Max Marks: 80

Answer any FIVE questions
All questions carry equal marks

- 1 (a) Explain the various methods of computing the mean precipitation over a basin.
(b) Find the rainfall at station X from the following data.

Station	X	A	B	C	D
Storm rainfall (cm)	X	12.0	14.0	16.4	18.5
Annual rainfall (cm)	112	122	142	127	120

- 2 Describe various methods of estimating evaporation from water bodies.

- 3 Derive a unit hydrograph of 2 hr unit duration from 4 hr unit duration with the following data.

Time	0	2	4	6	8	10	12	14	16	18	20	22	24	26	28
Ordinates of unit hydrograph	0	9	20	35	49	43	35	28	22	17	12	9	6	3	0

- 4 The data obtained during a stream gauging using a current meter with a rating $V = 0.04 + 0.65 N$ is given below. The velocity at all the verticals is measured at 0.4 times the depth of flow from the streambed. Compute the discharge using the mid-section method.
- 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 40 m/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) Describe quality of irrigation water and also standards for irrigation water.
(b) Describe briefly the various soil groups of India.
- 7 (a) What is consumptive use of water? Describe any two methods for determining the consumptive use of water.
(b) What is the soil water tension? Distinguish between the soil water tension and soil water stress.
- 8 (a) List the various types of linings. Discuss the salient features of cement concrete lining.
(b) Distinguish between:
 - (i) Alluvial soil and non-alluvial soil.
 - (ii) Mean velocity and critical velocity.
