

**B.E / B.Tech. (Full Time) DEGREE END SEMESTER EXAMINATION, APRIL/MAY 2012****CIVIL ENGINEERING BRANCH****SEVENTH SEMESTER****CE 471 – IRRIGATION ENGINEERING INCLUDING DRAWING****(REGULATIONS 2004)****Time: 3 hr****Marks: 100****Answer ALL questions****Part – A (10 x 2 = 20 Marks)**

1. Define Irrigation and state any two ill-effects of irrigation.
2. Define Irrigation and write its necessity
3. What are the factors influencing the water relations of plants, their growth and yield responses?
4. Distinguish between Saturation Capacity and Field Capacity.
5. Define Potential Evapo-Transpiration (PET)
6. Distinguish between consumptive use and evapo-transpiration
7. A crop requires a total depth of 6.8 cm of water for a base period of 115 days. Find the duty of water.
8. Define irrigation scheduling and state its purpose.
9. What are the methods used in determining best irrigation project using economical analysis?
10. Write the need for interdisciplinary approach in irrigation water management

**Part – B (5 x 16 = 80)**

11. The base period, intensity of irrigation and duty of various crops under a canal system are given in the table below. Find the reservoir capacities if the canal losses are 22 % and reservoir losses are 11 %.

**(16)**

Sl. No.	Crop	Base Period (days)	Duty at the field (hectares/cumec)	Area under the crop (hectares)
1	Wheat	120	1800	4800
2	Sugar-cane	360	800	5600
3	Cotton	200	1400	2400
4	Rice	120	900	3200
5	Vegetables	120	700	1400
6	Cereals	90	350	500

12. (a) (i) Define moisture content in soil and list the instruments used to measure soil moisture content. **(5)**

(ii) Explain briefly the soil moisture potential and how it is useful for movement of the soil water in the plant root zone? **(11)**

**(OR)**

- (b) (i) Explain water logging and salinity in agriculture **(4)**

(ii) Explain briefly the soil moisture movement in the soil under saturated and unsaturated conditions. **(12)**

- 13.(a) (i) List out the theoretical methods of determining the crop water requirements using Meteorological data. (3)
- (ii) Estimate the consumptive use of water for paddy crop at Chengalpattu (12degree 50 minutes North) by using Blaney-Criddle method. Average monthly crop coefficient is 1.15 for all months and monthly mean temperature in degree Centigrade is 28, 29.5, 31, 31.5, and 32 for four month duration crop. (13)

(OR)

- (b) (i) During the particular stage of the growth of a crop, consumptive use of water is 3.8 mm/day. Determine the interval in days between irrigation and depth of water applied when the amount of water available in the soil is 55 % of the maximum depth of available water in the root zone which is 95 mm. (10)
- (ii) Explain the different stages of crop growth which affect crop factor (6)
14. (a) (i) Discuss the status of tank irrigation system in India and explain any one system in Tamilnadu. (10)
- (ii) List the different types of cross drainage works and explain any two methods with suitable sketch. (6)

(OR)

- (b) (i) Explain the necessity of river training works (8)
- (ii) Write the factors involved in the alignment of canal for an irrigation project (8)
15. (a) (i) Why irrigation water management needs inter disciplinary approach? (8)
- (ii) State the importance of Participatory approach in any irrigation project (8)

(OR)

- (b) (i) Explain the administrative setup and working of water users association (6)
- (ii) Discuss the advantages of farmer organization and turn over in improving the system performance? (10)