Q.P. Code: 18AG0709

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Reg. No:

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech III Year II Semester Regular Examinations July-2021
IRRIGATION & DRAINAGE ENGINEERING
(Agricultural Engineering)

Time: 3 hours   Max. Marks: 60

PART-A
(Answer all the Questions 5 x 2 = 10 Marks)

1	a	Define field capacity and permanent wilting point.	L1	2M
	b	Determine the required capacity of a sprinkler system to apply water at the rate of 1.25 cm/hr. Two 186 metres long sprinkler lines are required. Sixteen sprinklers are spaced at 12 metre intervals on each line. The spacing between lines is 18 meters.	L3	2M
	c	Define clogging and mention the types of clogging in micro irrigation system.	L1	2M
	d	Define bio drainage and vertical drainage system.	L1	2M
	e	Define observation wells and piezo-meter.	L1	2M

PART-B
(Answer all Five Units 5 x 10 = 50 Marks)

UNIT-I

2	a	Write about the Base period, Duty, Delta and derive the relation between them.	L3	5M
	b	Explain the advantages and disadvantages of irrigation system.	L3	5M

OR

3	a	Describe briefly about the factors affecting duty.	L1	5M
	b	Explain briefly about the essence of National Water Policy.	L3	5M

UNIT-II

4	a	Discuss the major components of a drip irrigation system with necessary drawing.	L4	5M
	b	A twenty-hectare area has medium texture loam soil grown with Wheat crop peak. Daily water use of wheat crop is 6.2 mm/day. The available soil moisture (FC – WP) is 120 mm/m. The allowable soil moisture depletion is 50%. The crop root zone depth (DRZ) is 0.8 m. Soil infiltration rate is 6 mm/h. The other climatic data are: average wind speed 10 km/h. Determine the maximum net depth of water application.	L2	5M

OR

5	a	Define sprinkler irrigation system. What are the advantages and limitation of sprinkler system?	L3	5M
	b	Explain briefly about the hydraulics design of sprinkler system.	L3	5M

UNIT-III

6	a	Explain the need of chlorine treatment and procedure for chlorine treatment.	L3	5M
	b	Explain briefly about the maintenance of micro irrigation system.	L5	5M

OR

7	a	Explain the working and backflusing of sand filter with neat sketch.	L3	6M
	b	Explain about acid treatment procedure carried out in drip system.	L4	4M

UNIT-IV

8	**a**	Derive Hooghoudt equation with neat diagram.	L4	6M
	b	Define drainage and write its objective and discuss about the drainage problems in India.	L2	4M

OR

9	**a**	Explain briefly about leaching requirement.	L3	5M
	b	Explain about conjunctive use of saline and fresh water.	L3	5M

UNIT-V

10	**a**	Explain about manning's equation and its applications.	L3	5M
	b	Define observation wells and write in detail about its installation.	L4	5M

OR

11	**a**	Describe briefly about the Glover-Dumm Equation.	L2	5M
	b	Explain the investigation of drain design parameters through drain testing.	L3	5M

END