



**SIDDHARTH INSTITUTE OF ENGINEERING AND TECHNOLOGY :: PUTTUR
(AUTONOMOUS)**

Siddharth Nagar, Narayanavanam Road – 517 583

QUESTION BANK (DESCRIPTIVE)

Subject with Code: IDE (18AG0709)

Course & Branch: B.Tech-AGE

Year & Sem: III-B.Tech & I-Sem

Regulation: R18

UNIT – I

1.	a.	Define hydraulic conductivity and its unit of measurement	[L1][CO1]	[2M]
	b.	Write short note on development of irrigation in India.	[L2][CO1]	[2M]
	c.	Define field capacity and permanent wilting point	[L1][CO1]	[2M]
	d.	List out the factors affecting the duty	[L1][CO1]	[2M]
	e.	Briefly explain saturation capacity and moisture equivalent of crop	[L2][CO1]	[2M]
2.	a.	Define irrigation and necessities of irrigation.	[L2][CO1]	[5M]
	b.	Explain the advantages and disadvantages of irrigation system.	[L3][CO1]	[5M]
3.	a.	Which are the largest west flowing rivers? Which are the major projects built on these rivers?	[L3][CO1]	[5M]
	b.	Find the delta of a crop if the duty for a base period of 120 days is 1450 ha/cumec	[L2][CO1]	[5M]
4.	a.	Explain briefly about the essence of National Water Policy	[L3][CO1]	[4M]
	b.	If 5 cumec of water is applied for a crop in a area of 500 ha, Find the duty of the crop.	[L2][CO1]	[6M]
5.	a.	Explain briefly duty, delta, base period and their relation	[L3][CO]	[6M]
	b.	Find the duty of water if a crop requires a total depth of 920 mm of water for a base period of 120 days	[L2][CO1]	[4M]
6.		Define the following: (a) Water intake (b) Percolation (c) Interflow (d) Seepage (e) Permeability	[L1][CO1]	[10M]
7.		Briefly explain about the classification of irrigation projects.	[L4][CO1]	[10M]
8.	a.	Define the following: (a) Base and crop period (b) Gross command area and culturable command area (c) Irrigation interval.	[L1][CO1]	[6M]
	b.	Express a duty of 1800 ha/cumec for a base period of 120 days in ha per million m ³	[L4][CO1]	[4M]
9.		Explain the relationship between duty and delta and list out the factors affecting duty.	[L2][CO1]	[10M]
10.		Briefly explain the rapid development of irrigation potential in India	[L4][CO1]	[10M]

UNIT-II

1.	a.	Define Irrigation and classify irrigation methods.	[L1][CO2]	[2M]
	b.	Enlist crops and soil suitably irrigated by sprinkler irrigation system	[L1][CO2]	[2M]
	c.	Give the classification of sprinkler based on its portability	[L2][CO2]	[2M]
	d.	Define Uniformity coefficient and its formula for calculation	[L1][CO2]	[2M]
	e.	Differentiate perforated pipe system and rotating head system	[L1][CO2]	[2M]
2.	a.	Define sprinkler irrigation system? What are the advantages and limitation of sprinkler system	[L3][CO2]	[6M]
	b.	Enlist the parameters affecting the selection of sprinkler	[L1][CO2]	[4M]
3.	a.	Write a short note on sprinkler layout and system	[L3][CO2]	[5M]
	b.	What are the inventory resource and parameters required for design of sprinkler	[L2][CO2]	[5M]
4.	a.	Explain system capacity, Discharge through sprinkler, Height of sprinkler, sprinkler spacing, Discharge through sprinkler, water application rate	[L4][CO2]	[6M]
	b.	A sprinkler system 18 m spacing along the main and 12 m along the laterals is used to irrigate crop grown on coarse sandy soil over more compact soil land slope of 3 per cent. Twenty sprinklers are used to irrigate field. Determine the total system capacity.	[L3][CO2]	[4M]
5.	a.	Define Net depth of water application, Irrigation frequency, Gross depth of water application.	[L3][CO2]	[6M]
	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^{-1} . The available soil moisture ($\theta_{FC} - \theta_{WP}$) is 120 mm m^{-1} . The allowable soil moisture depletion is 50%. The crop root zone depth (D_{RZ}) is 0.8 m. Soil infiltration rate is 6 mm h^{-1} . The other climatic data are: average wind speed 10 km h^{-1} . Determine the maximum net depth of water application.	[L2][CO2]	[4M]
6.		Explain briefly the performance evaluation of sprinkler system	[L4][CO2]	[10M]
7.		Explain the classification of sprinkler system	[L3][CO2]	[10M]
8.		Explain briefly the components of sprinkler irrigation system with neat sketch	[L4][CO2]	[10M]
9.		Explain in brief the hydraulics design of sprinkler system	[L3][CO3]	[10M]
10.		Define Drip irrigation system, Explain its suitability, advantages and disadvantages.	[L5][CO1]	[10M]

UNIT-III

1.	a.	Define clogging and mention the types of clogging in micro irrigation system	[L1][CO3]	[2M]
	b.	Write short note on maintenance of Micro irrigation system	[L2][CO3]	[2M]
	c.	Define fertigation and factors influencing the effective fertigation.	[L1][CO3]	[2M]
	d.	Explain the principle of hydro cyclone filter.	[L2][CO3]	[2M]
	e.	Explain frequency of fertigation and fertilizer injection rate	[L2][CO3]	[2M]
2.	a.	Explain different types of clogging in Micro irrigation system	[L3][CO3]	[6M]
	b.	Write a short note on preventive measures of clogging	[L2][CO3]	[4M]
3.	a.	Explain the working and backflusing of sand filter with neat sktech	[L3][CO3]	[5M]
	b.	Explain the need of chlorine treatment and procedure for chlorine treatment	[L3][CO3]	[5M]
4.	a.	Write a brief note on precautions for successful fertigation system	[L4][CO3]	[6M]
	b.	Explain fertilizer solubility and their compatibility.	[L3][CO3]	[4M]
5.	a.	Explain the need of acid treatment and types of acid used for acid treatment in MIS	[L2][CO3]	[4M]
	b.	Explain how acid treatment is carried out in drip system	[L4][CO3]	[6M]
6.		Briefly explain about the maintenance of micro irrigation system.	[L5][CO3]	[10M]
7.		Briefly explain the methods of fertigation application	[L5][CO3]	[10M]
8.		Explain the need of filters in MIS and types of filters used with its working	[L5][CO3]	[10M]
9.		Define fertigation and explain advantages, limitation in micro irrigation system	[L5][CO3]	[10M]
10.		Breifly explain the methods used for injection of fertilizers	[L5][CO3]	[10M]

UNIT-IV

1.	a.	Write a short note on Drainage porosity	[L1][CO4]	[2M]
	b.	Define bio drainage and vertical drainage system	[L1][CO4]	[2M]
	c.	Write a short note on drain Envelopes in tile drainage system	[L2][CO4]	[2M]
	d.	Define water logging and write critical and potential area of water logging	[L1][CO4]	[2M]
	e.	Define drainage Co efficient and Mole drainage system	[L1][CO4]	[2M]
2.	a.	Write in detail the accessories for tile drainage system.	[L3][CO4]	[6M]
	b.	Define subsurface drainage and write the specific benefits of sub surface drainage	[L2][CO4]	[4M]
3.	a.	Explain in detail the reclamation of saline and alkaline soils	[L3][CO4]	[5M]
	b.	Explain leaching requirement	[L3][CO4]	[5M]
4.	a.	Define water logging, List and explain the causes and impact of water logging.	[L3][CO4]	[6M]
	b.	Discuss conjunctive use of saline and fresh water.	[L3][CO4]	[4M]
5.	a.	Define drainage and write its objective and discuss about the drainage problems in India	[L2][CO4]	[4M]
	b.	Explain in detail the design of surface drainage system	[L3][CO4]	[6M]
6.		Derive Ernst equation with neat diagram	[L4][CO4]	[10M]
7.		Explain in detail the design of subsurface drainage system	[L5][CO4]	[10M]
8.		Briefly explain the investigation for subsurface drainage	[L4][CO4]	[10M]
9.		Derive Hooghoudt equation with neat diagram	[L4][CO4]	[10M]
10.		Define drainage, explain different types of surface drainage system with sketch	[L5][CO4]	[10M]

UNIT-V

1.	a.	Write about the methods used to determine the drainage Coefficient	[L1][CO5]	[2M]
	b.	Define drainable porosity and transmissivity in Drainage system	[L1][CO5]	[2M]
	c.	Define Net present value and Benefit Cost ratio	[L1][CO5]	[2M]
	d.	Define observation wells and piezometer	[L1][CO5]	[2M]
	e.	Define drainage coefficient and Hydraulic conductivity	[L1][CO5]	[2M]
2.	a.	Explain the Investigation of drain design parameters through drain testing.	[L3][CO5]	[6M]
	b.	Explain the lab method for determination of hydraulic conductivity	[L2][CO5]	[4M]
3.	a.	Briefly explain about the Glover-Dumm Equation	[L2][CO5]	[5M]
	b.	Write a short note on comparison of steady and unsteady state equation	[L3][CO5]	[5M]
4.	a.	Define observation wells and write in detail about its installation	[L4][CO5]	[6M]
	b.	Explain manning's equation and its application.	[L3][CO5]	[4M]
5.	a.	Write a note on selection of suitable steady state Drainage equation	[L3][CO5]	[4M]
	b.	Briefly explain about indices used in economic evaluation of drainage system	[L4][CO5]	[6M]
6.		Explain about the unsteady state equation in pipe flow	[L5][CO5]	[10M]
7.		Define Hydraulic conductivity, porosity, drainable porosity, infiltration, percolation and interflow.	[L5][CO5]	[10M]
8.		Explain in detail about the steady state equation used in pipe flow	[L5][CO5]	[10M]
9.		Explain the methods involved in determination of hydraulic conductivity	[L5][CO5]	[10M]
10.		Write a short note on economics of drainage system	[L5][CO5]	[10M]

Prepared by: Er. SOUMYA KULKARNI
Assistant Professor/AGE