Reg. No | | | | | | | | | | |

AY 24

GANDHI INSTITUTE OF ENGINEERING AND TECHNOLOGY, ODISHA, GUNUPUR

(GIET UNIVERSITY)

M. Sc. (Ag.) (First Semester - Regular) Examinations, February – 2025

AGRON 504 - Principles and Practices of Water Management

Time: 2 hrs | Maximum: 50 Marks

Answer ALL questions

(The figures in the right hand margin indicate marks)

PART – A **(2 x 5 = 10 Marks)**

Q.1. Answer ***ALL*** the questions

		CO #	Blooms Level
a.	Water movement under unsaturated condition occurs in lateral direction. Give reason.	CO3	K2
b.	Define the terms adhesion and cohesion.	CO2	K1
c.	Distinguish between available and un-available soil water.	CO3	K4
d.	What is capillary water and gravitational water? Explain.	CO4	K2
e.	Explain about water holding capacity and infiltration rate in one sentence.	CO1	K2

PART – B **(6 x 5 = 30 Marks)**

Answer ***ANY SIX*** questions

		CO #	Blooms Level
2.	What is scheduling of irrigation. Explain about the criteria for scheduling irrigation.	CO4	K2
3.	What is waterlogging? Explain in detail about harmful effects of excess irrigation or waterlogging.	CO2	K4
4.	Write the different soil moisture constants along with their soil moisture potential values and explain about them.	CO1	K2
5.	What is water use efficiency? Explain about different factors affecting Water Use Efficiency.	CO3	K5
6.	Write down the different water movement in soil and briefly explain the difference between saturated and unsaturated flow of water.	CO4	K4
7.	What are the different criteria for determining the quality of irrigation water. Explain about the effects of salinity and sodicity on crop growth.	CO2	K5
8.	What are the key components of an effective rainwater management system for crop production, and how can each of these components contribute to enhancing water use efficiency in agriculture?	CO3	K3
9.	a) Describe the most suitable irrigation method and corresponding irrigation depth for different crops? b) What are the deficit irrigation strategies for different crops species?	CO4	K6

PART – C **(10 x 1 = 10 Marks)**

Answer ***ANY ONE*** question

		CO #	Blooms Level
10.	What are the different criteria for determining the quality of irrigation water. Explain about the effects of salinity and sodicity on crop growth. Classify the water based on salinity (EC), sodicity (SAR).	CO4	K5
11.	What are the key challenges associated with water management in problem soils, and how can these challenges be addressed to improve soil health and optimize crop production?	CO3	K4
12.	How does the effective utilization of rainwater contribute to sustainable agriculture and climate resilience, particularly in regions facing water scarcity or erratic rainfall patterns?	CO4	K5

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