

THE KAVERY ENGINEERING COLLEGE*(An Autonomous Institution)***B.E/B.TECH DEGREE END SEMESTER THEORY EXAMINATIONS, NOV/DEC 2025***Third Semester**Agricultural Engineering***AI3301 - Principles of Soil Science and Engineering***Regulations - 2021**Duration : 3 Hrs**Maximum : 100 Marks***PART - A (ANSWER ALL QUESTIONS) (Marks 10*2=20)**

<i>Q.No</i>	<i>Questions</i>	<i>BTL</i>	<i>CO</i>	<i>Marks</i>
1.	List the major components of soil.	L1	1	2
2.	Mention two factors affecting soil temperature.	L2	1	2
3.	Short notes on soil taxonomy.	L1	2	2
4.	What is soil reclamation?	L1	2	2
5.	Define phase diagram of soil.	L1	3	2
6.	What are the main factors affects compaction?	L2	3	2
7.	Recall the purpose of soil Triaxial test.	L1	4	2
8.	What is mean by compressibility?	L1	4	2
9.	List the factors influencing the bearing capacity of soils.	L1	5	2
10.	What is the purpose of providing retaining walls in slopes?	L1	5	2

PART - B (ANSWER ALL QUESTIONS) (Marks 5*16 = 80)

<i>Q.No</i>	<i>Questions</i>	<i>BLT</i>	<i>CO</i>	<i>Marks</i>
11.	a Brief the methods of soil profiling and soil logging.	L2	1	16
	Or			
	b Explain the classification of soil water with a neat diagram. Describe their availability to plants.	L2	1	16
12.	a Brief the methods of classification of soil which is used for agricultural purpose.	L2	2	16
	Or			
	b Explain the reclamation methods for saline and alkali soils. Discuss chemical and biological methods	L2	2	16
13.	a i A soil sample has a bulk density of 19.5 KN/m^3 and water content of 15%. Determine dry density, void ratio, and degree of saturation. If specific gravity is 2.65.	L2	3	6
	ii Define Atterberg limits. Analyze the procedure for determining liquid limit and plastic limit of soil.	L4	3	10
	Or			
	b Examine the various soil compaction methods used in the field, Indicate the soil types and conditions.	L4	3	16

14.	a	Explain the shear strength of cohesive and cohesionless soils using Mohr-Coulomb failure theory.	L2	4	16
		Or			
	b	Illustrate the constant head and falling head laboratory tests to determine permeability.	L2	4	16
15.	a	Identify the various types of shallow foundations with neat sketch and their applications.	L3	5	16
		Or			
	b	Briefly explain the methods of analysis of finite slope.	L3	5	16