Q.P. Code: 18CE0116 **R18**

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

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR

(AUTONOMOUS)

B.Tech III Year I Semester Supplementary Examinations December-2021

GEOTECHNICAL ENGINEERING

(Civil Engineering)

Time: 3 hours Max. Marks: 60

PART-A

(Answer all the Questions **5 x 2 = 10** Marks)

1	a	Define the terms: (i) Effective stress, (ii) Neutral stress, (iii) Total stress.	L1	2M
	b	Write short notes on Compression index, Expansion index and Recompression index.	L1	2M
	c	Write various assumptions of Boussinesq's equation.	L1	2M
	d	Discuss various types of slope failures.	L2	2M
	e	What are various types of borings for soil exploration?	L2	2M

PART-B

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

UNIT-I

2	a	Explain quick sand condition.	L1	5M
	b	Define flow net and various applications of flow net.	L2	5M
		OR		
3	a	What are consistency limits and explain them with graph?	L1	5M
	b	Explain in detail the laboratory method of liquid limit.	L2	5M

UNIT-II

4		Define consolidation and various types of consolidations.	L1	10M
		OR		
5		Describe the Standard proctor test and modified Proctor test to be conducted in the laboratory.	L2	10M

UNIT-III

6		Explain the principle of direct shear test. What are the advantages and limitations of this test?	L1	10M
		OR		
7	a	Explain Mohr's circle of stress.	L1	5M
	b	Explain Mohr-Coulomb strength theory.	L2	5M

UNIT-IV

8	a	What are the factors that cause slope failures?	L1	5M
	b	Explain different types of slope failures with neat sketch.	L2	5M
		OR		
9		A canal is to be excavated through a soil with c = 15 kN/m^2, $\Phi = 20^o$, e = 0.9 and G= 2.67. The side slope is 1 in 1. The depth of the canal is 6 m. determine the factor of safety with respect to cohesion when the canal runs full. What will be the factor ofsafety if the canal is rapidly emptied?	L3	10M

UNIT-V

10	a	Discuss various open excavation methods for conducting soil exploration.	L1	5M
	b	Sketch scraper bucket sample and explain how an undisturbed soil sample isextracted using it.	L2	5M
		OR		
11		Explain in detail how plate load Test is conducted with neat sketch.	L2	10M

END