Q.P. Code: 18CE0133 **R18**

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

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR

(AUTONOMOUS)

B.Tech III Year II Semester Regular Examinations July-2021

FOUNDATION ENGINEERING

(Civil Engineering)

Time: 3 hours Max. Marks: 60

PART-A

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

1	**a**	Write short notes on Retaining walls.	**L1**	**2M**
	b	Define Safe bearing capacity	**L1**	**2M**
	c	Write short notes on piles.	**L1**	**2M**
	d	List out various types of Caisson.	**L1**	**2M**
	e	Write short notes on Frequency.	**L1**	**2M**

PART-B

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

UNIT-I

2		What are the assumptions of earth pressure theory and derive an expression for Rankines Earth pressure in cohesive soils.	**L2**	**10M**

OR

3		A cantilever retaining wall of 7mts height retains sand. The properties of sand are e=0.5,φ=300 and G=2.7m.Using Rankines theory Determine the active earth pressure at the base when the backfill is (i) dry (ii) saturated (iii)submerged and also the resultant active force in each case.	**L3**	**10M**

UNIT-II

4	**a**	With neat sketches explain different types of shear failures.	**L2**	**5M**
	b	Determine the ultimate bearing capacity of a strip footing, 1.20 m wide, and having the depth of foundation of 1.0 m. use Terzaghi's theory and assume general shear failure. Take φ = 35o , γ = 18 kN/m3 , and C' = 15 kN/m2 . Take (Nc=57.8, Nγ=42.4, Nq=41.4)	**L3**	**5M**

OR

5	**a**	List out various parameters for choice of type of foundation.	**L1**	**5M**
	b	Write various points to consider for fixing depth of foundation.	**L1**	**5M**

UNIT-III

6	**a**	A 30cm diameter concrete pile is driven into a homogeneous consolidated clay deposit (cu=40kN/m2 , α=0.7).If the embedded length is 10m, estimate the safe load (F.S. =2.5)	**L3**	**5M**
	b	A square concrete pile (30cm side) 10 m long is driven into coarse sand (γ=18.5 kN/m3 , N=2.0). Determine the allowable load (F.S. =3.0).	**L2**	**5M**

OR

7	**a**	Explain settlement of pile groups in cohesion less soils.	**L2**	**5M**
	b	Explain settlement of pile groups in cohesive soils.	**L2**	**5M**

UNIT-IV

8		Explain different shapes of wells with neat sketch.	**L1**	**10M**
		OR		
9		Explain various steps involved in sinking operation of wells with neat sketch.	**L2**	**10M**

UNIT-V

10	**a**	The exciting force of a machine is 100kN.Determine the transmitted force if the natural frequency of the machine foundation is 3.0Hz.Take D=0.40 and the operating frequency as 5Hz.	**L3**	**5M**
	b	A 2.50Mg vertical compressor foundation system is operated at 40Hz.The soil at the site is medium stiff clay (Cu=4 x 10 4 kN/m3).Determine the natural frequency and the magnification factor, assuming ms=0.2mf.The base area is 2.5m2 .Take D=0	**L3**	**5M**
		OR		
11	**a**	Explain reinforcement and construction details of machine foundations.	**L2**	**5M**
	b	List out various measures adopted for vibration isolation and control.	**L1**	**5M**

END