Q. Code: 294267

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

B.E. / B.TECH. DEGREE EXAMINATIONS, MAY 2023

Fifth Semester

CE16504 – FOUNDATION ENGINEERING

(Civil Engineering)

(Regulation2016)

TIME:3 HOURS **MAX. MARKS: 100**

PART- A (10x2=20 Marks)

(Answer all Questions)

1. List the different objectives of site investigation.
2. Compare about disturbed & un-disturbed samples.
3. Differentiate between local shear failure and general shear failure.
4. Define the term Settlement.
5. Where can be the raft or mat foundation adopted?
6. State the requirement of a good foundation.
7. What is meant by group settlement ratio?
8. Define negative skin friction.
9. State Active and Passive Earth pressure.
10. Enumerate the assumptions made in Rankine's theory.

PART- B (5x 16=80Marks)

		Marks
11. (a)	Explain the salient features of a good sub- soil investigation.	**(16)**
	(OR)	
(b)	Explain in detail the standard penetration test. Examine also the corrections to be applied on the observed SPT 'N' Value.	**(16)**
12. (a)	In the field, a soft normally consolidated clay layer exists for a thickness of 20 m. The natural water content, specific gravity of solids and the liquid limit of the clay are 40%, 2.7 and 60 % respectively. The ground water table is at the surface and the saturated unit weight is 19.80 kN/m^3. The vertical stress increment at the center of the clay layer due to the foundation load is 10 kN/m^2. Estimate the settlement of the foundation.	**(16)**
	(OR)	

(b) Explain Terzaghi's analysis of bearing capacity of soil in general shear failure with assumptions. **(16)**

13. (a) Explain the step by step procedure of proportioning of trapezoidal combined footing with neat sketch. **(16)**

(OR)

(b) Design a rectangular combined footing for two columns having column load of 600 kN and 900 kN. Take the net allowable pressure as 100 kN/m^3. **(16)**

14. (a) Define pile foundation. Briefly discuss about the type of pile and their functions. **(16)**

(OR)

(b) A square concrete pile (30cm side) 10 m long is driven into coarse sand having $\gamma = 18.5$ kN/m^3 & N = 20. Determine the allowable load (F.S = 3.0). **(16)**

15. (a) Give a brief note on the following with variation of pressure distribution **(16)**
(i) Cantilever Retaining Wall (ii) Counterfort Retaining Wall

(OR)

(b) Construct a sketch and explain coulomb's wedge theory for soil pressure distribution. **(16)**

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