Question Paper Code: R18A32CE01

R18

ANURAG Engineering College

(An Autonomous Institution)

III B.Tech II Semester Regular/Supplementary Examinations, June/July - 2024

FOUNDATION ENGINEERING

(CIVIL ENGINEERING)

Time: 3 Hours **Max. Marks: 75**

Section – A (Short Answer type questions) (25 Marks)

Answer All Questions		Course Outcome	B.T Level	Marks
1.	What are the corrections to be applied to the standard penetration number?	CO1	L1	2M
2.	Write a short note on need for soil exploration	CO1	L2	3M
3.	Write about stability conditions for retaining wall?	CO2	L1	2M
4.	Enumerate the assumptions made in Rankine's theory.	CO2	L2	3M
5.	Define gross and safe bearing capacity	CO3	L2	2M
6.	List the assumptions made in Terzaghi's bearing capacity theory	CO3	L3	3M
7.	Define shallow foundation?	CO4	L2	2M
8.	Distinguish between uniform settlement and differential settlement.	CO4	L3	3M
9.	Define pile foundation?	CO5	L2	2M
10.	Discuss components of well foundation	CO5	L3	3M

Section B (Essay Questions)

Answer all questions, each question carries equal marks. (5 X 10M = 50M)

11. A)	Explain the salient features of a good sub- soil investigation report.	CO1	L3	10M
	OR			
B)	Describe Pressure meter test with neat sketches.	CO1	L3	10M
12. A)	Define retaining wall and Derive expression for stability conditions of retaining wall?	CO2	L3	10M
	OR			
B)	A wall 5.4m high, retains sand. In the loose state the sand has void ratio of 0.63 and ϕ=27°, while in the dense state, the corresponding values of void ratio and ϕ are 0.36 and 45° respectively. Compare the ratio of active and passive earth pressures in the two cases, assume G=2.64.	CO2	L3	10M
13. A)	Derive bearing capacity equation for square footing as per karlvon Terzagh's theory?	CO3	L3	10M
	OR			
B)	A strip footing is to carry a load of 750kN/m at a depth of 1.6m in a cohesive soil having unit weight of 18kN/m^3 & C=20kN/m^2 and angle of internal friction is 25 degrees. Determine the width of footing, using F.O.S as 3. Use Terzhagi's equations. N_c = 25.1, N_q = 12.7 and N_γ = 9.7.	CO3	L3	10M

14. A)	Determine the allowable gross load and the net allowable load for a square footing of 2 m side and with a depth of foundation of 1 m. Use Tarzaghi's theory and assume local shear failure. Take factor of safety of 3. The soil at the site has $\gamma = 18$ kN/m^3, c'= 12 kN/m^2 and Ø' = 25°. Take Nc' =14.8 ; Nq' = 5.6 ; Nγ' = 3.2	CO4	L3	10M
	OR			
B)	Write briefly about causes of settlement due to load and other conditions?	CO4	L3	10M
15. A)	Write briefly about pile load test?	CO5	L3	10M
	OR			
B)	A reinforced concrete piles weights 30 kN, is driven by a drop hammer weights 40 kN having an effective fall of 0.8 m. The average set per blow is 1.4 cm. The total temporary elastic compression is 1.8. Assuming coefficient of resistance as 0.25. Determine the safe load using i) Engineering News Formula ii) Hileys Formula	CO5	L3	10M