

THE KAVERY ENGINEERING COLLEGE
(An Autonomous Institution)

**B.E/B.TECH DEGREE END SEMESTER THEORY EXAMINATIONS, APRIL-MAY
2025**

Fifth Semester

Civil Engineering

CE3503 - Foundation Engineering

Regulations - 2021

Duration : 3 Hrs

Maximum : 100 Marks

PART – A (ANSWER ALL QUESTIONS) (Marks 10*2=20)

Q.No	Questions	BLT	CO	Marks
1.	Relate the uses of bore log report.	L2	1	2
2.	Define Area ratio.	L1	1	2
3.	Define safe bearing capacity.	L1	2	2
4.	What is net pressure intensity?	L1	2	2
5.	What are the assumptions made in combined footing?	L1	3	2
6.	Define spread or Isolated footing.	L1	3	2
7.	What is under reamed pile? When it is preferred?	L1	4	2
8.	Mention the reasons for conducting initial tests on piles.	L1	4	2
9.	State the formula for Active and Passive Earth pressure.	L2	5	2
10.	Outline the stability conditions should be checked for the retaining wall?	L2	5	2

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

Q.No	Questions	BLT	CO	Marks
11.	a Explain the standard penetration test and discuss corrections to the penetration value.	L2	1	16
	Or			
	b Write short notes on soil sampling. Explain the different types of sampler in detail with neat sketch.	L2	1	16
12.	a Demonstrate the elastic and plastic equilibrium zones as per Terzaghi's bearing capacity analysis. Additionally, establish a connection between the forces at play during the verge of failure.	L3	2	16
	Or			
	b Explain the plate load test to determine the bearing capacity of soil.	L2	2	16
13.	a A combined footing is to support two columns 250 mm X 250 mm and 300 mm X 300 mm carrying loads of 300 kN and 450 kN respectively. The columns are spaced at 4 m c/c. The	L3	3	16

allowable bearing capacity of the soil is 150 kPa. Find the plan dimension of the footing if, i) The first column alone is on the boundary line. ii) Both the columns are on the boundary line.

Or

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|-----|---|--|----|---|----|
| | b | What are the different types of Mat foundation? Explain them in detail. | L2 | 3 | 16 |
| 14. | a | A reinforced concrete pile weighs 30kN, is driven by a drop hammer weighs 40kN having an effective fall of 0.8m. The average set per blow is 1.4cm. The total temporary elastic compression is 1.8. Assuming coefficient of restitution as 0.25. Determine the safe loading, i) Engineering News formula ii) Hiley formula. | L3 | 4 | 16 |
| | | Or | | | |
| | b | Explain in details about the various types of pile foundation with neat sketch and write their functions. | L2 | 4 | 16 |
| 15. | a | Explain the Culmann's graphical method for finding active earth pressure with neat sketch. | L2 | 5 | 16 |
| | | Or | | | |
| | b | Compute the intensities of active and passive earth pressure at a depth of 8m in dry cohesion less sand with an angle of internal friction of 30° and unit weight of 18 kN/m^3 . What will be the intensities of an active and passive earth pressure if the water level rises to the ground level? Take saturated unit weight of sand as 22 kN/m^3 . | L3 | 5 | 16 |