R22 Regulation *Subject code:4P7AB*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

(Autonomous, Accredited by NAAC with 'A+' Grade)

B.Tech VII Semester Regular Examinations, November 2025

FOUNDATION ENGINEERING

(CE)

Maximum Marks: 60 Date: 26.11.2025 Duration: 3 hours

Note: 1.This question paper contains two parts A and B.
2. Part A is compulsory which carries 10 marks. Answer all questions in Part A.
3. Part B consists of 5 Units. Answer any one full question from each unit.
4. Each question carries 10 marks and may have a, b, c, d as sub questions.

Part-A

All the following questions carry equal marks (10X1M=10 Marks)		Marks	CO	BloomTx
1.a)	List the information obtained from a site investigation.	1M	1	1
b)	Define disturbed and undisturbed samples.	1M	1	1
c)	Mention the factors affecting the stability of slopes.	1M	2	1
d)	Write the formula relating Taylor's stability number, cohesion, and height of slope	1M	2	1
e)	State the assumptions made in Coulomb's theory.	1M	3	1
f)	List the different types of retaining walls.	1M	3	1
g)	What factors influence the minimum depth of foundation?	1M	4	1
h)	Define SPT N-value	1M	4	1
i)	List the different types of piles based on material.	1M	5	1
j)	Define group efficiency of piles.	1M	5	1

Part-B

Answer All the following questions. (5X10M=50Marks)		Marks	CO	BloomTx
2	a) Describe various boring methods used in soil exploration. b) Discuss the various factors influencing the scope and extent of site investigation.	5M 5M	1	2 2
	OR			
3	Explain the Pressure Meter Test with neat sketches.	10M	1	3
4	Describe the different types of slope failures with neat sketches.	10M	2	3
	OR			
5	An infinite slope is made of dry sand having an angle of internal friction of 30°. The slope angle is 25°. Determine the factor of safety with respect to shear strength. If the slope becomes submerged, find the new factor of safety.	10M	2	3

6	Explain the different types of lateral earth pressures with neat sketches.	10M	3	3
	OR			
7	A cantilever retaining wall of height 6 m has the following data: Thickness of base = 3 m Weight of wall = 400 kN/m Active earth pressure on wall = 120 kN/m (acts at 2 m above base). Coefficient of friction between base and soil = 0.55 Check the stability against sliding and overturning.	10M	3	3
8	Explain Skempton's bearing capacity equation for cohesive soils and discuss its applications.	10M	4	2
	OR			
9	a) Discuss the factors governing the choice of type and depth of foundation. b) Describe the various factors affecting the settlement of foundations.	5M 5M	4	2 2
10	Explain the different types and shapes of well foundations with neat sketches.	10M	5	3
	OR			
11	A pile is driven with a drop hammer of 25 kN weight falling through 1 m.The average set per blow for the last few blows is 6 mm.Find the ultimate load capacity using Engineering News formula (F.S. = 6).	10M	5	3