Reg. No:

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech IV Year I Semester Regular Examinations November/December-2022
FOUNDATION ENGINEERING
(Civil Engineering)

Time: 3 hours   Max. Marks: 60
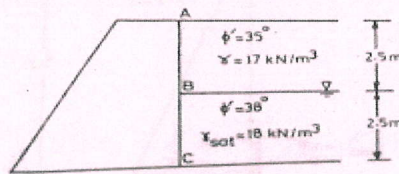
(Answer all Five Units **5 x 12 = 60** Marks)

UNIT-I

1 **a** Define various types of lateral earth pressures with neat sketch.   L2   6M

   b Determine the active pressure on the retaining wall as shown in fig. Take   L3   6M
   $\gamma_w = 10 kN/m^3$.

OR

2 **a** Explain various types of retaining walls with neat sketch.   L2   6M

   b Explain various requirements of stability analysis of Gravity retaining   L3   6M
   walls.

UNIT-II

3 **a** Describe different types of shallow foundations? Explain with the help of   L2   6M
   neat Sketches?

   b Determine the ultimate bearing capacity of a strip footing, 1.20 m wide,   L3   6M
   and having the depth of foundation of 1.0 m. use Terzaghi's theory and
   assume general shear failure. Take $\varphi = 35^\circ$, $\gamma = 18$ kN/m^3 , and C' = 15
   kN/m^2 . Take (Nc=57.8,Nγ=42.4, Nq=41.4)

OR

4 **a** What are different types of settlements that occur in a foundation?   L2   6M

   b A rectangular footing (3 m X 2 m) exerts a pressure of 100 kN/m^2 on a   L3   6M
   cohesive soil (Es =5x10^4 and μ=0.50).Determine the immediate settlement
   at the center, assuming a) Footing is flexible b) Footing is rigid

UNIT-III

5 **a** Describe the classification of Pile foundations.   L2   6M

   b A 30cm diameter concrete pile is driven into a homogeneous consolidated   L3   6M
   clay deposit (cu=40kN/m^2 , α=0.7).If the embedded length is 10m,
   estimate the safe load (F.S. =2.5).

OR

6 **a** Describe how the pile load test is conducted with a neat sketch.   L3   6M

   b How would you estimate the load carrying capacity of a pile by using   L3   6M
   Engineering News formula.

UNIT-IV

7 **a** With the help of neat sketch explain various components of well   L3   6M
   foundations.

   b Explain various steps involved in sinking operation of wells with neat   L1   6M
   sketch.

OR

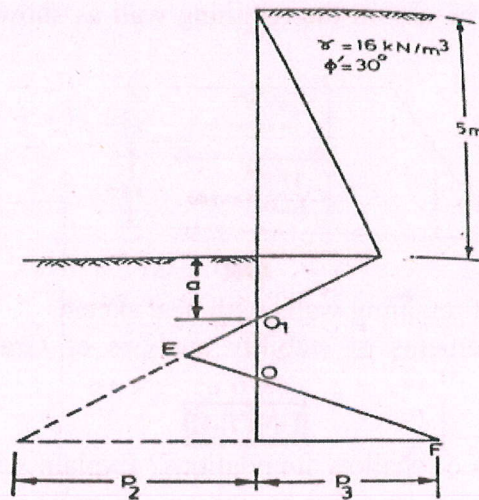|				
8	**a**	Describe the various components of pneumatic caisson with the help of neat sketch.	L2	6M
	b	What are the advantages and disadvantages of pneumatic caisson over open caisson?	L1	6M

UNIT-V

9	**a**	What are different types of sheet pile walls? Explain with neat sketch.	L3	6M
	b	Explain in detail the pressure distribution of cantilever sheet pile in cohesion less soils with neat sketch.	L3	6M

OR

10	**a**	What are different anchors used in sheet pile walls.	L2	4M
	b	Determine the required penetration of the cantilever sheet pile as shown in fig. Take $\gamma = 16 kN/m^3$.	L3	8M

*** END ***