

(DCE 326)

B.Tech DEGREE EXAMINATION, MAY - 2015

(Examination at the end of Third Year)

CIVIL ENGINEERING

Paper - VI : Geo-Technical Engineering - II

Time : 3 Hours

Maximum Marks : 75

Answer question No.1 compulsory

(1 × 15 = 15)

Answer ONE question from each unit

(4 × 15 = 60)

- 1) a) What is disturbed sampling?
- b) State four purposes of soil exploration.
- c) List any three boring methods used in soil exploration.
- d) Define Isobars.
- e) Write stress-strain Parameters of a soil.
- f) Write the types of retaining walls.
- g) State Rankines earth Pressure theory.
- h) Define (i) slope (ii) factor of safety.
- i) Write any two assumptions in stability Analysis.
- j) What are the various types of shear failure?
- k) Define Negative skin friction.
- l) What is sinking of well?
- m) Define (i) tilt (ii) shift.

- n) What is an under reamed pile?
- o) Explain allowable settlement.

UNIT - I

- 2) a) Briefly explain Boussing's solution for stress distribution? [8]
- b) Write the assumptions and limitations of Boussing's solutions. [7]

OR

- 3) a) Explain briefly about cone penetration tests. [8]
- b) What is sub surface exploration? Write short notes on location of water table. [7]

UNIT - II

- 4) a) Write the assumptions in stability Analysis. Explain various methods of improving stability of slopes in brief. [7]
- b) Explain different types of lateral earth pressures. [8]

OR

- 5) Describe Rankines earth pressure theory for cohesive soils and compare the same with coulombs wedge theory. [15]

UNIT - III

- 6) a) What is the safe bearing capacity of a circular footing of 1.5m diameter resting on the surface of a saturated soil of unconfined compressive strength of 120 N/m² if the factor of safety is 3. [7]
- b) Explain the causes of settlement in foundations and state the necessary precautions to control the settlements of foundation. [8]

OR

- 7) a) Determine the ultimate bearing capacity of a square footing 2m × 2m in a soil with unit weight of 18 kN/m³, $\phi = 20^\circ$, $c = 20$ kN/m². Take the depth of the foundation as 1m. Use Terzaghi's equation. [5]
- b) Explain various limitations of plate load test. [5]
- c) How is settlement of footings estimated. [5]

UNIT - IV

8) a) What are the various forces acting on a well foundation? Explain in detail individual components of a well with a neat sketch. [7]

b) What is the necessity of a pile foundation? Explain classification of piles in detail. [8]

OR

9) a) Write short notes on : [9]

i) Pile group and its efficiency.

ii) Construction of piles.

iii) Rectification of tilts and shifts.

b) Explain about under reamed pile foundation in swelling soils. [6]

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