

089027

Total No. of Questions : 5

Total No. of Printed Pages : 4

UITians

EK-346

B.E.(VIIIth Sem.) (CGPA) Civil Engg. Exam.-2016

GEOTECHNICAL ENGINEERING-II

Paper - CE-801

Time Allowed : Three Hours

Maximum Marks : 60

Note : Attempt all questions.

All question carry equal marks.

Internal choice given.

Q.I Explain what are the types of bearing capacity are considered on shallow foundation ? 6

(a) Explain types of shear failure on footing with neat sketch. 6

(b) Derive how the water table effect on bearing capacity when it is located above the base of footing. 6

(2)

UITians

or

- (a) Discuss Meyerhof's bearing capacity theory.
How does it differ from Terzaghi's theory ?
- (b) 2M wide strip footing is placed in 1m below the ground level of a clay having following properties
- $C = 80 \text{ KN/m}^2$ $\phi=0$. When undrained $C'=0$ $\phi'=30^\circ$
when undrained unit water of soil above the water table is 16 KN/m^3 and unit weight below water table = 20 KN/m^3 of water table is a foundation level. Calculate safe bearing capacity of footing level using factor of safety - 2.5 under long term conditions using Terzaghi's theory. Bearing capacity factors are given in the table—

ϕ	N_c	N_q	N_4
0	5.7	1	0
30°	37.2	22.5	19.7

Q.II.

- (a) How do you classify pile foundation on the basis of—
- (i) Material
 - (ii) Influence of pile installation
 - (iii) Load transfer

(3)

~~(b)~~ How do you estimate the bearing capacity of group of piles in sand and clay ?

or

(a) 200 mm diameter, 8 m long piles around a foundations for a column in a uniform deposit of medium clay ($q_u = 100 \text{ KN/m}^2$) the spacing between the piles is 500 mm. There are 9 piles in the ground arranged in square pattern. Calculate the ultimate pile load capacity of the group. Assume Adhesion factor = 0.9.

(b) Explain penetration test for the estimation of load carrying capacity of piles ?

~~Q.III~~ (a) Explain the compaction effect on the properties of soil ?

~~(b)~~ Describe standard proctor test and the modified proctor test ?

or

(a) What are the various equipment used for compaction of soil and their suitability ?

(b) Explain the stabilization of soil by geotextile and fabrics ?

(4)

UITians

- Q.IV (a) Describe the parameters of expansive soil ?
(b) How would you design a foundation on expansive soil not susceptible to wetting ?

or

- (a) Explain modification of expansive soil.

- (b) Write note on —

- (i) CNS layer
(ii) Swelling potential

- Q.V (a) What is machine foundation ? Explain their types and suitability ?

- (b) What are classification of sheet piles / bulk head ?

or

- (a) Explain the design of block foundation for impact type of machine.

- (b) Write short notes on the following—

- (a) Cofferdam
(b) Anchored sheet pile
(c) Mass spring analogy
(d) Cantilever sheet piles