Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

PDDC - SEMESTER–V • EXAMINATION – SUMMER • 2014

Subject Code: X50603 Date: 31-05-2014

Subject Name: Foundation Engineering

Time: 02:30 pm - 05:00 pm Total Marks: 70

Instructions:

(1)All questions are compulsory.
(2)Figures to the right indicates the marks.
(3)Use of Programmable calculator is strictly prohibited.
(4)Draw neat sketch wherever necessary.

Q.1 (A) What do you understand by disturbed sample and undisturbed sample? How would you obtain undisturbed sample and maintain it till testing? **07**

Q.1 (B) Describe the salient feature of good bore log reports. **07**

Q.2 (A) A square footing fails under general shear cohesion less soil under an ultimate load of Qu=7500 KN. The footing in placed at a depth 2m below ground level. Given Ø=35˚. And γ=17.25 KN/m^3. Determine the size of footing, if the water table is at great depth.N_c=46.12 ,N_q= 33.3 and N_γ= 48.03. **07**

Q.2 (B) What are the field test from which we can find the bearing capacity? Explain any one. **07**

OR

Q.2 (B) Write about presumptive bearing capacity and write the values of bearing capacity for non-cohesive and cohesive soils as per IS 1904:1978. **07**

Q.3 (A) Classify the types of pile according to, (a) Function,(b) Materials and composition,(c) The installation method and (d) Mechanism of load transfer. **07**

Q.3 (B) What are the methods for estimating the load carrying capacity of a pile foundation? **07**

OR

Q.3 (A) A pile load test gave the following data **07**

Load in kN	100	200	300	400	500	600
Settlement (mm)	3	6	9	13	19	27

Plot the settlement curve and determine the allowable load with F.S. of 3.

Q.3 (B) Explain negative skin friction and its effect on the pile. **07**

Q.4 (A) Explain about the installation methodology for under reamed piles. **07**

Q.4 (B) What are the preventive measures before the construction on collapsible soil? **07**

OR

Q.4 Write about the pressure distribution beneath the rigid and flexible footing, when supported by cohesive and non cohesive soil, with neat sketch. **14**

Q.5 (A) Explain the steps of site investigation. And explain significance of site investigation. **07**

Q.5 (B) explain various uses of geo synthetics in field of soil stabilization (Reinforcement), separation and filtration. **07**

OR

Q.5 (A) Derive the equation for depth of footing for ultimate bearing capacity. **07**

Q.5 (B) Discuss various dynamic formulae for and their limitations. **07**

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