Seat No.: _____ Enrolment No.: _____

GUJARAT TECHNOLOGICAL UNIVERSITY

M. E. - SEMESTER – I • EXAMINATION – WINTER • 2013

Subject code: 714305N **Date: 06-01-2014**

Subject Name: Soil Stabilization and Grouting Technology - I

Time: 10.30 am – 01.00 pm **Total Marks: 70**

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q-1(a)	Enlist the various stabilizing agents and explain the function of each in detail. How the suitability of stabilizing agents is decided?	**07**
Q-1(b)	Define grouting, classify grouting on the basis of purpose and explain each in detail with neat sketch.	**07**
Q-2(a)	Explain cement treated soil stabilization. Which strength parameters are important in deciding cement stabilization? How they are obtained?	**07**
Q-2(b)	Explain the various physical and chemical properties of grout? How they are determined in laboratory?	**07**
	OR	
Q-2(b)	Enlist and describe various types of chemical grouts with their suitability. Which parameters are kept in mind while designing chemical grout?	
Q-3(a)	Discuss in detail the various electrical methods of soil stabilization.	**07**
Q-3(b)	Explain the principle of bituminous soil stabilization, enumerate the various bituminous stabilized mixtures and state their role.	**07**
	OR	
Q-3(a)	Distinguish between fine grouts and coarse grouts. Explain cement grouts in detail.	**07**
Q-3(b)	Enlist various strength measurements of grout system and explain gel strength in detail with supportive plots.	**07**
Q-4(a)	What is lime stabilization and explain how lime stabilizes soil? Which type of lime is suitable for it? Support your answer with necessary reactions.	**07**
Q-4(b)	What role viscosity measurements play in deciding quality of grout? Support your answer with necessary plots.	**07**
	OR	
Q-4(a)	Explain what you mean by frame work approach, how it is used in design of grouts and explain the difference between Newtonian and non-Newtonian grouts.	**07**
Q-4(b)	Explain various geological considerations field grout mix. Explain each criteria in detail.	**07**
Q-5(a)	Write advantages and disadvantages of compaction grouting. Explain any one application of compaction grouting with case study.	**07**
Q-5(b)	Explain techniques of grouting and write a short note on stage grouting	**07**
	OR	
Q-5(a)	What do you understand by penetrability and performance of grouts? State and explain various parameters for coarse and fine grouts.	**07**
Q-5(b)	Explain the gelation and microscopic behavior of cement grout.	**07**

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