A **Reg. No. :** | | | | | | | | | | |

Question Paper Code: 59113

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2018

Elective

Civil Engineering

15UCE913- GROUND IMPROVEMENT TECHNIQUES

(Regulation 2015)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

1. The process of removal of water from the soil is known as CO1- R

   (a) blasting (b) stabilization (c) preloading (d) dewatering

2. _____ system is suitable for lowering the ground water table where the soil formation is pervious with depth. CO1- R

   (a) consolidation (b) preloading (c) deep well drainage (d) blasting

3. Vibratory roller for best suited for compacting CO2- R

   (a) coarse sand and gravels (b) silts

   (c) organic soil (d) all the above

4. The spacing of the stone column is generally between CO2- R

   (a) 0.5&1.5m (b) 1.5&3m (c) 2&2.5m (d) 2.5&3m

5. A change in the stress system acting on a soil mass causes a change in the volume of the soil mass is known as CO3- R

   (a) permeability (b) stability (c) compatibility (d) compressibility

6. Precompression method is useful for compacting CO3- R

   (a) silts (b) clay (c) organic soil (d) all the above

7. …. is the process of improving the properties of the soil by changing its gradation CO4- R

(a) Chemical Stabilization (b) Electrical Stabilization

(c) Mechanical Stabilization (d) None of these

8. The dolomite quick lime is given by _____ CO4- R

(a) CaO + AgO (b) Na2O + MgO (c) CaO + MgO2 (d) CaO + MgO

9. The situation in which the grout flows freely with minimal effect into the soil voids or rock seams is known as _____ CO5- R

(a) consolidation (b) displacement (c) permeation (d) compaction

10. The process of ground improvement attained by injecting fluid like material into subsurface soil or rock is known as _____ CO5- R

(a) electro osmosis (b) grouting (c) surcharge fills (d) tamping

PART – B (5 x 2= 10Marks)

11. What is the necessity of ground improvement? CO1- R

12. What are the advantages of Rapid impact compaction? CO2- R

13. Define the efficiency of vertical drains.. CO3- R

14. Quote the significance of soil stabilization. CO4- R

15. Mention the importance of hydraulic fracturing. CO5- R

PART – C (5 x 16= 80Marks)

16. (a) Explain the following methods of dewatering systems of drainage methods. CO1- U (16)

1. Open sumps and ditches
2. Well point systems

Or

(b) Describe the dewatering by electro osmosis method with suitable sketches. CO1- U (16)

17. (a) What is meant by vibroflotation? How it is executed in field? CO2- U (16)

Or

(b) Explain how surface compaction technique is useful in improving the properties of the soil.. CO2- U (16)

18. (a) Explain in detail about the methods of pre-loading techniques. CO3- U (16)

Or

	(b)	Define Vertical drain. Discuss the principle and design of vertical drain.	CO3- U	(16)
19.	(a)	Discuss about the mechanical stabilization and its significances.	CO4- U	(16)
		Or		
	(b)	Describe about the chemical stabilization and bituminous stabilization.	CO4- R	(16)
20.	(a)	Critically discuss about the suspensions grouts and grouting with cement mixes.	CO5- Ana	(16)
		Or		
	(b)	Describe in detail about the various methods of grouting with neat diagram.	CO5- U	(16)

59113