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

Question Paper Code: 59113

B.E. / B.Tech. DEGREE EXAMINATION, APRIL 2019

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. ……..means the consolidation of soft clays by the application of electric current CO1- R

   (a) Electro-osmosis (b) Grouting (c) both (d) well point

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. Vibro-flotation is an efficient technique for densifying _____ soils. CO2- R

   (a) coarse sand (b) granular sand (c) cohesive (d) cohesionless

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. The recompression is about ……. Of the compaction index. CO3- R

   (a) 5 times (b) 1/5 (c) 1/2 (d) 1/20

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. If Grout is injected into the soil at low pressure and voids are filled, then it is…….. CO5- R

(a) Jet grouting (b) Compaction grouting

(c) Permeation grouting (d) Cement grouting

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 drainage CO1- R

12. What is dynamic consolidation? CO2- R

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

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

15. Define grouting. CO5- R

PART – C (5 x 16= 80Marks)

16. (a) Explain the basic concepts of ground improvement techniques CO1- U (16)

Or

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

17. (a) Elaborate the smooth wheel roller method, sheep foot roller and grid roller processes of surface compaction. 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 about the compressibility characteristics of any six types of soil deposits.	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 in detail	CO4- R	(16)
20.	(a)	Critically discuss about the suspensions grouts and grouting with cement mixes.	CO5- Ana	(16)
		Or		
	(b)	Explain with the help of flow chart the various classification of geo synthetic in detail.	CO5- U	(16)

59113