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Question Paper Code : 20241

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2018.

Sixth Semester

Civil Engineering

CE 6012 — GROUND IMPROVEMENT TECHNIQUES

(Regulations 2013)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Name the various soil deposits found in India.
2. What is called a dewatering technique?
3. Why non-oven geo textiles are used in drainage ditches? State the reason behind it.
4. Name the best suited soil for dewatering technique.
5. Define 'sensitive clay'.
6. List the various methods of in-situ densification.
7. What is called reinforced soil?
8. List down the materials used as soil stabilizers.
9. What is called consolidation?
10. Define the term 'grouting'.

PART B — (5 × 13 = 65 marks)

11. (a) Explain the various methods available for ground improvement. (13)

Or

- (b) Describe the factors influencing the selection of ground improvement techniques. (13)

12. (a) (i) Explain in detail with a neat sketch the method of dewatering using sumps and ditches stating its advantages and disadvantages. (8)
(ii) Write a note on deep well along with its merits and demerits. (5)

Or

- (b) (i) Write a note on well point system of dewatering. (7)
(ii) List down the various precautions adopted in electro-osmotic dewatering. (6)
13. (a) (i) Differentiate top feed from bottom feed method. (5)
(ii) Describe the various stages of operation in installation and action of a lime pile. (8)

Or

- (b) Write in detail the principle, operation and applications of Vibro-compaction method of ground improvement. (13)
14. (a) Write about the various grout injection methods. (13)

Or

- (b) Explain in detail the different methods of mechanical stabilization. (13)
15. (a) Explain about the various classifications of geo-synthetics with the help of a flow chart. (13)

Or

- (b) With neat sketches explain in detail about the reinforced earth for ground improvement. (13)

PART C — (1 × 15 = 15 marks)

16. (a) Write a note on the following aspects of Ground Improvement techniques.
(i) Objectives of Dewatering (8)
(ii) Sand drains with limitations. (7)

Or

- (b) (i) Write a brief note on the different applications of Grouting. (8)
(ii) Explain the role of ground improvement in foundation engineering. (7)