Roll No. | | | | | | | | | | | | |

Total No. of Questions: 09 **Total No. of Pages: 02**

B. Tech. (CE) (Sem. 7, 8)
GROUND IMPROVEMENT TECHNIQUES
Subject Code: BTCE-810
Paper ID: A2964

Time: 3 Hrs. **Max. Marks: 60**

INSTRUCTIONS TO CANDIDATES:

1. **Section A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **Section B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.**
3. **Section C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.**

SECTION A

1.

a) What are the advantages of preloading methods?

b) Define coefficient of surcharge.

c) What do you mean by liquifaction.

d) What arc solution grouts.

e) What precautions should be taken while mixing a grout.

f) What is the difference between vibro compaction and vibro displacement compaction.

g) Give applications of soil-lime columns.

h) What are the disadvantages of thermal methods for soil improvement

i) Name various grouting materials.

j) What are displacement piles.

SECTION B

2. Explain Dynamic compaction technique for soil stabilization? What are the merits of this technique'?

3. Enumerate the effects of soil stabilization by heating

4. Is preloading method really a hydraulic modification of the ground or should it be discussed as a mechanical modification? Explain

5. Write brief notes on jet grouting and its applications?

6. Explain the factors influencing the increase in strength of treated soil?

SECTION C

7. What arc the various vibro compaction methods used for densification? Explain in detail.

8. Explain the separation and filtration function of geotextiles. Mention the applications based on these functions.

9. A 3.5 m high and 7m wide embankment is to be built on soft ground with a basal geotextile layer. Calculate the geotextile strength and modulus required in order to prevent block sliding on the geotextile. Assume that the embankment material has a unit weight of 15 KN/m^3. The angle of shearing resistance is 33° and the geotextile -soil interface angle of shearing resistance is one third of that value