

**7E4037**

Roll No. \_\_\_\_\_

[Total No. of Pages : 2]

**7E4037****B.Tech. VII Semester (Main/Back) Examination - 2013****Civil Engg.****7CE6.2 Ground Improvement Techniques****Time : 3 Hours****Maximum Marks : 80****Min. Passing Marks : 24*****Instructions to Candidates:***

*Attempt any five questions, selecting one question from each unit. All questions carry equal marks. (Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly. Units of quantities used/calculated must be stated clearly.)*

**Unit - I**

1. a) State and discuss different types of transported soil. (8)
- b) Discuss collapsible soil with sketch. What do you mean by active zone in expansive soil? (8)

**OR**

1. a) Discuss objectives of ground improvement. (8)
- b) Discuss different types of rollers for field compaction and their suitability. (8)

**Unit - II**

2. Discuss with sketch vibro compaction method of compaction of granular soil. (16)

**OR**

2. Discuss with sketch, Dynamic method of compaction of granular soil and fine grained soil. (16)

**Unit - III**

3. a) What do you mean by Preloading? What are different types of drains used in Precompression? (8)
- b) How will you determine time period 't' of loading if additional surcharge to be loaded is given? (8)

**OR**

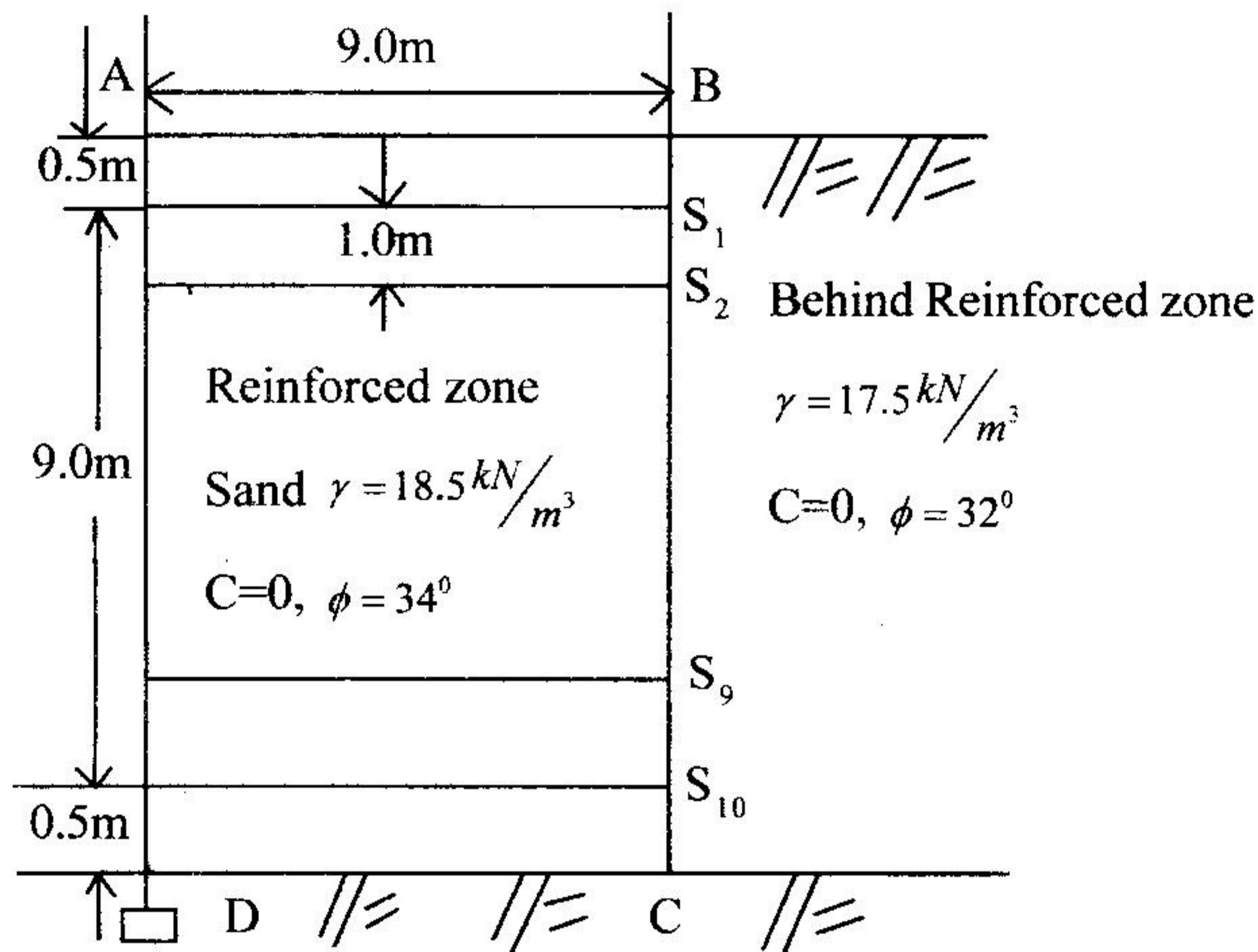
3. a) What do you mean by rate of consolidation? How it is determined? (8)  
 b) Discuss design principles of stone column. (8)

**Unit - IV**

4. What are different methods of grouting? Explain them. (16)

**OR**

4. Check the reinforced earth wall shown in fig-1 for stability against  
 a) sliding  
 b) Overturning and  
 c) bearing failure. (16)



**Fig.1**

**Unit - V**

5. a) What do you mean by Base Exchange? Explain with example. (8)  
 b) Discuss design of foundation on lime column. (8)

**OR**

5. a) What are different methods of soil-bitumen stabilization? Explain them. (8)  
 b) Discuss soil-cement stabilization in brief. (8)