

**B.Tech. (Civil Engineering), 8<sup>th</sup> Semester  
(G-Scheme), Examination, December-2022**

**GEOTECHNOLOGY**

**Paper -PEC-CEEL-408-G**

*Time allowed : 3 hours]*

*[Maximum marks : 75*

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**Note:** *Attempt five questions in all, selecting one from each section. Question no.1 is compulsory. All question carry equal marks.*

**1. Describe the following:** 15

- (a) Causes of failure of slopes
- (b) Braced Cuts
- (c) Cement stabilization
- (d) Types of machine foundation
- (e) Factor of safety used in stability of slopes
- (f) Dynamic compaction and consolidation

**Section-A**

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3. (a) Explain Fellenius method to locate centre of most critical circle. 8

- (b) Describe various factors of safety used in stability of slopes. 7

#### Section-B

4. (a) Explain different types of sheeting and bracing system. 7

- (b) What are braced cuts. Describe with neat sketch different components of braced cuts. 8

5. (a) What is coffer dam different types of coffer dams. 8

- (b) What are the advantages and disadvantages of coffer dams. 7

#### Section-C

6. Derive an expression of depth of embedment of cantilever sheet pile in cohesionless soil. 15

7. Determine the depth of embankment by free earth support method for an anchored sheet pile wall penetrating granular soil and supporting back fill of same material to a height of 8m. The tie rods are placed at 2.5m below the top. Take  $\gamma$  (unit wt of soil) = 16KN/m<sup>3</sup>. And  $\phi = 35^\circ$  15

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(3)

#### Section-D

8. Explain the pre compression, mechanical stabilization and reinforced earth in detail. 15

9. Define degree of freedom of a block foundation and describe the general criteria for design of machine foundation. 15

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