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Printed Pages : 2

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BT-6 / M-18
GEOTECHNOLOGY-II
Paper–CE–308N

Time allowed : 3 hours] *[Maximum marks : 75*

Note :- *(i) Attempt five questions in all, selecting at least one question from each unit.*

(ii) Assume missing data, if any, suitably

Unit–I

1. Discuss the various measures to control seepage through the embankment, as well as foundation of an earthen dam. 15

2. (a) Describe as to how the stability analysis of infinite slopes carried out. 10

   (b) What is Taylor's stability number? Discuss its uses. 5

Unit–II

3. Discuss the modes of failure of braced cuts. Explain with sketches, the pressure distribution assumed behind the sheeting of braced open cuts in sands and clays. 15

4. Draw sketches to explain the various types of cofferdams. Discuss the various design data required for cellular cofferdam. 15

Unit–III

5. Discuss the purpose of providing sheet piles.

   A Cantilever sheet pile wall is to support the side of an excavation

2.5 m deep. Determine the safe driving depth required by simplified method. 15

Given $C' = 0$, $\phi = 30°$, $r = 20$ kN / m^3.

6. What do you understand by the free earth support method and Fixed earth support methods for the design of Anchored Sheet Pile Walls? Describe Blum's Equivalent beam method for cohesionless soils. 15

Unit–IV

7. Describe the following methods of improving the sub-soil in the field. Under what circumstances each method is adopted.

   (a) Lime Piles and Columns 7,8

   (b) Stone column Technique

8. (a) What do you understand by the following: 5

   Free vibrations, Forced vibrations, Resonance, Degree of Freedom and Free vibrations. 5

   (b) Bring out the equation of motion for a spring-mass system with free vibrations.

   How is the natural frequency of the system determined? 10