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Reg. No. : .....

Name : .....

Eighth Semester B.Tech. Degree Examination, December 2018
(2013 Scheme)
13.806.3 : REINFORCED EARTH (C)

Time : 3 Hours Max. Marks : 100

Instruction : *Answer **all** questions from Part – **A** and **any one full** question from **each** Module (Part – **B**).*

PART – A

1. What is Reinforced earth ? Distinguish between internally and externally stabilized wall systems.

2. Discuss the concept of expanding soil mass.

3. Write the different component factors that comprising the partial material factor used in the design of reinforced soil wall.

4. How to determine whether the ties at any depth below the shallow foundation will fail or not either by breaking or by pull-out ?

5. Explore the advantages of natural coir geotextiles. **(4×5=20 Marks)**

PART – B

Module – I

6. List the factors that influence the performance and behavior of reinforced soil. Briefly discuss the role of reinforcement in the behavior of reinforced soil by its form, surface properties, dimensions, strength and stiffness. **20**

OR

7. Discuss the application areas of (a) embankment (b) housing (c) industrial and (d) railways for the use of earth reinforcement. **20**

P.T.O.

Module – II

8. Write the assumptions made to examine the wedge stability. Discuss the various forces required for wedge stability (pullout failure) assessment. **20**

OR

9. Discuss the calculation of tensile forces considering spacing as well as stress distribution against checking the tension failure. **20**

Module – III

10. a) Explain the possible modes of failure of geotextile-reinforced shallow foundations with neat schematic diagrams. **12**

    b) What are the assumptions needed to obtain the force that develops in the reinforcing ties ? Calculate the tension force mobilised in reinforcement ties layer located at a depth of 1 m from the bottom of foundation with the following data: Designed reinforced continuous foundation has to carry a load of 500 kN/m with allowable bearing capacity of the foundation is 170 kN/m^2. Consider four numbers of reinforcing layers spaced at the distance of 0.5 m. Assume the functions A_1 and A_2 corresponding to 1 m depth are 0.34 and 0.18 respectively. Take width of foundation is 1 m. **8**

OR

11. Describe briefly the construction methods with sequence procedures used for constructing reinforced soil structures. **20**

Module – IV

12. a) What is fundamental concept of soil nailing ? Explore some applications of soil nailing in geotechnical engineering practice. **12**

    b) Describe the various jute products with their typical properties. **8**

OR

13. How the geocomposite is different from geotextiles ? Explore the concept of geocomposites, geotubes and geobags used in the geotechnical field applications with case examples. **20**