DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

Regular End Semester Examination – Summer 2022

Course: B. Tech. **Branch : Civil Engineering** **Semester : VIII**

Subject Code & Name: BTCVSS801B (Geo-synthetics and Reinforced Soil Structures)

Max Marks: 60 **Date: 04/07/2022** **Duration: 3.45 Hr.**

Instructions to the Students:

1. *All the questions are compulsory.*
2. *The level of question/expected answer as per OBE or the Course Outcome (CO) on which the question is based is mentioned in ( ) in front of the question.*
3. *Use of non-programmable scientific calculators is allowed.*
4. *Assume suitable data wherever necessary and mention it clearly.*

		(Level/CO)	Marks
Q. 1	**Solve Any Two of the following.**		
A)	Briefly describe the following terms: a) Geotextile b) Geogrids c) Geonets d) Geomembranes		**6**
B)	Briefly explain the various functions performed by geosynthetics.		**6**
C)	State the test methods of testing different hydraulic properties of geotextiles. Explain any two methods in details.		**6**
Q.2	**Solve Any Two of the following.**		
A)	List the major raw materials that are used for the manufacture of soil reinforcements.		**6**
B)	State and explain the possible modes of failure of a soil-reinforcement system?		**6**
C)	State the test methods of Geotextiles. Explain any two methods in details.		**6**
Q. 3	**Solve Any Two of the following.**		
A)	List the assumptions involved in the Tie Back Wedge analysis. .		**6**
B)	The following data refers to a reinforced soil structure with strip reinforcement. ΔV =4cm, ΔH= 10 cm, γ = 20 kN/m3 , Max. Permissible stress in the reinforcement = 105 kPa, φi = 32o , w=3cm, L = 75 cm, t=0.2cm. Find the equivalent confining stress. What type of failure is expected in the structure? Find the equivalent confining stress if geotextile reinforcement with stiffness of 1500 kN/m is used instead with a vertical spacing of 8cm		**6**
C)	Explain with sketches the various modes of stability of retaining walls.		**6**
Q.4	**Solve Any Two of the following.**		
A)	Explain the different types of erosion control products.		**6**
B)	Explain the Geosynthetic Clay Liner, its's advantages, disadvantages and applications.		**6**
C)	State and explain the different criteria for engineered landfills.		**6**

Q. 5 Solve Any Two of the following.

A)	What are natural geosynthetics? What are their advantages? Explain the typical situations where natural geosynthetics can be employed	**6**
B)	Explain and draw Mohr's circle for Equivalent Confining stress Concept and Pseudo Cohesion Concept.	**6**
C)	List the various processes by which (i) Non-woven geosynthetics and (ii) Geogrids are manufactured.	**6**

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