

Code No: **RT42012A**

R13

Set No. 1

IV B.Tech II Semester Regular/Supplementary Examinations, April - 2018

ENGINEERING WITH GEO-SYNTHETICS

(Civil Engineering)

Time: 3 hours

Max. Marks: 70

Question paper consists of Part-A and Part-B

Answer ALL sub questions from Part-A

Answer any THREE questions from Part-B

PART–A (22 Marks)

1. a) Write effect of temperature on some of the geosynthetic polymers. [3]
- b) What are the benefits of using the geotextile layer or layers in the construction of unpaved roads? [4]
- c) List the various test methods developed for measuring the size of openings in geotextiles. [4]
- d) Why natural fibres degrade? Write a note on it. [3]
- e) List the main elements or systems comprising a modern municipal solid waste landfill. [4]
- f) Write the importance of reinforced earth walls. [4]

PART–B (3x16 = 48 Marks)

2. a) Write the types of geosynthetics and discuss their characteristics [8]
- b) What are the advantages of a textured geomembrane? Where should a textured geomembrane be used in field applications? [8]
3. a) How are the geotextiles used in minimizing the piping phenomenon? Discuss with clear illustrations. [8]
- b) What are the essential properties of soil to be determined for the successful use of a geotextile in a filtration application? [8]
4. Explain the behaviour of different subgrades with their CBR values. Also discuss the role of geosynthetics in roads and pavements. [16]
5. a) Describe the basic components of a geosynthetic-reinforced retaining wall. [8]
- b) Provide a list of various facing elements in reinforced earth wall. Which one is the most economical? [8]
6. a) List the advantages of a geosynthetic filter over the graded granular filter. [8]
- b) Why is it recommended to place a layer of aggregates between the geotextile and the riprap? [8]
7. a) What are natural geotextiles? List them. Discuss their applications of them in various civil engineering works. [8]
- b) Write the various advantages and disadvantages of natural geotextiles. [8]