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
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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]