Register Number……

M.TECH. DEGREE EXAMINATIONS: DECEMBER 2009

First Semester

TEXTILE TECHNOLOGY

TTX617: Geo Textiles

Time: Three Hours **Maximum Marks: 100**

Answer All the Questions:-

PART A (10 x 2 = 20 Marks)

1. What are the basic functions of geo textiles?
2. Give name of four polyester family fibres used for geo textiles.
3. Which arrangement of woven geotextiles gives an anisotropic strength and stiffness?
4. Write a note Non-woven geo textiles.
5. What are the uses of Biodegradable geotextiles?
6. List out three applications of geo textiles in filtration activity.
7. What do you mean by Band drains?
8. How can you improve the construction of road with geotextiles (paved roads)?
9. Where can you apply geotextiles in soil reinforcement activity?
10. List out various types of tests applicable for geo textiles.

PART B (5 x 16 =80 Marks)

11. (a) (i) Classify the geo textile groups into different categories. (8)

(ii) Write down the various developments took over in geo textiles. (8)

(OR)

(b) Discuss in detail about various fibres used in geo textiles and its properties.

12. (a) Discuss in details about Clogging, Blocking and Blinding of geo textiles.

(OR)

(b) Enumerate the usage of natural materials as geo textiles.

13. (a) (i) Summarize the functions of geo textiles in transportation. (8)

(ii) How can you evaluate the transportation geo textiles? (8)

(OR)

(b) Explain the installation procedure of paving fabric.

14. (a) How can you control the Rainfall erosion by using geo textiles?

(OR)

(b) Illustrate the Erosion control for inland water ways.

15. (a) (i) Discuss the advantage and disadvantages of reinforce soil walls. (8)

(ii) How will you evaluate the mechanical properties of geo textile? (8)

(OR)

(b) It is proposed to use a woven polyester geotextiles with low-creep characteristics to reinforce a 9.5 m high embankment constructed from fill with $\Phi=32^{o}$ and $\gamma= 19$ kN/m^3. The embankment is to have a face inclined at 48º to the horizontal and is to support a surcharge of 5 kN/m^2.

Determine the spacing and length of the geotextiles if it has a short-term ultimate strength of 50 kN/m and a surface friction angle of 25º between the geotextiles and the fill, and 20º between two sheets of geotextiles. A short-term tensile safety factor of 3.0 is safely compatible with creep characteristics of the geotextiles over the design life of 120 years. As the geo textile has been found to be resilient to site handling, there is no need to allow for a site installation damage safety factor in this particular case.

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