Register Number:………….…

M.TECH DEGREE EXAMINATIONS: DEC 2015

(Regulation 2014)

Third Semester

TEXTILE TECHNOLOGY

P14TXTE12: Geotextiles

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

Answer all the Questions:-

PART A (10 x 1 = 10 Marks)

1. Relate list I with list II and match the correct codes given in the options   CO1   [K₄]

List I (Polymer properties)	List II (Name of the Polymer)
A. Alkali Resistance	i. Polyethylene
B. Creep Resistance	ii. Polypropylene
C. Rutting resistance	iii. Nylon
D. Abrasion Resistance	iv. Polyester

	A	B	C	D
a)	iii	iv	ii	i
b)	iv	iii	ii	i
c)	ii	i	iv	iii
d)	ii	iv	i	iii

2. Judge the equivalent pore size assessment of geotextiles   CO7   [K₅]

   a)   Dry sieving test method   b)   Hydrodynamic test method

   c)   Bubble point method   d)   Extinguish ability

3. Assertion (A): Voluminous material are used in Drainage, Filtration applications   CO2   [K₃]
   Reason (R):   High density fibres such as Polyester are preferred

   a)   [A] is right   [R] is wrong   b)   [A] is right   [R] is right

   c)   [A] is wrong [R] is wrong   d)   [A] is wrong [R] is right

4. Validate the motive for carbon black addition to Asphalt layer of the road structure   CO5   [K₅]

   a)   improve tensile strength   b)   improve UV strength

   c)   improve bio-ruin stability   d)   Improve creep resistance

5. Identify which of these construction survivability properties of Geotextiles statements are required. CO2 [K$_1$]

   1. Puncture resistance

   2. Bursting strength

   3. Permittivity

   4. Tear resistance

   a) 1,2   b) 1,4

   c) 2,3   d) 1,3

6. Identify the necessity of fine soil bags used in retaining walls   CO4 [K$_4$]

   a) UV resistant   b) load resistant

   c) erosion control   d) support

7. Deduct the irrelevant functions of geotextiles in pavement applications   CO1 [K$_2$]

   a) Separation   b) Filtration

   c) Cushioning   d) Reinforcement

8. Assertion (A): Creep is a time-dependant increase in strain under constant load   CO6 [K$_1$]

   Reason (R): It is a measure of serviceability failure over the fabric's design life

   a) [A] is right [R] is wrong   b) [A] is right [R] is right

   c) [A] is wrong [R] is wrong   d) [A] is wrong [R] is right

9. Tell the performance related test of geotextiles done for filter fabrics   CO7 [K$_2$]

   a) Ultraviolet resistance   b) Strength

   c) Piping behaviour   d) Pore size opening

10. List the Tensile Strength of fibres in downward order,   CO3 [K$_1$]

   1. Polyester, 2. Polyamide, 3. Polypropylene

   a) 3-1-2   b) 1-2-3

   c) 3-2-1   d) 2-1-3

PART B (10 x 2 = 20 Marks)

11. Define Geomembrane   CO3 [K$_1$]

12. List out the essential properties of geotextiles   CO2 [K$_2$]

13. Interpret on the degrading parameters that are susceptible to geotextiles   CO3 [K$_4$]

14. Illustrate about the critical hydraulic properties of geotextiles   CO2 [K$_3$]

15. List out the key parameters for geotextiles used for filters and drains   CO6 [K$_1$]

16. Infer on conventional road structures without Geotextiles   CO1 [K$_4$]

17. Tell the role of separation design of geotextiles   CO5 [K$_2$]

18.	Recall on Factor of safety	CO4	[K_1]
19.	Correlate puncture strength and bursting strength of geotextile testing	CO7	[K_4]
20.	Describe the importance of interface testing of geotextiles	CO7	[K_2]

PART C (10 x 5 = 50 Marks)

21.	Appraise the predominantly used geotextile polymers with its typical properties	CO2	[K_3]
22.	Compare with diagram, existence and non-existence of Geotextiles in road structure	CO1	[K_4]
23.	Analyze the importance of endurance properties for Geotextiles	CO2	[K_4]
24.	Assess on contribution of seam strength to Geotextiles performance	CO3	[K_5]
25.	Explain the factor of safety calculation methods; cite FOS values for retaining walls.	CO4	[K_2]
26.	Correlate the functions and properties of geotextiles used in embankments and roads	CO4	[K_4]
27.	Diagnose on the separation function design for different Geotextiles structures	CO6	[K_4]
28.	Interpret on the pull-out failure design for Geotextiles.	CO5	[K_5]
29.	Use of diagram, explain the dynamic puncture strength testing	CO7	[K_2]
30.	Justify POA and AOS as key Hydraulic parameters for Geotextiles	CO7	[K_3]

PART D (2 x 10 = 20 Marks)

31.	Evaluate on importance of geotextiles stating its properties, functions, raw materials in the following applications,	CO4	[K_6]
	a. Retaining walls (5)		
	b. Slopes (5)		
32.	Illustrate with diagram the following test methods meant for geotextiles,	CO7	[K_3]
	a. Wide width strip tensile method (5)		
	b. Dry sieving test method (5)		

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