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CS/M.TECH (MTT/MCP)/SEM-2/MTT-201/2013 2013

HIGH PERFORMANCE FIBRE AND INDUSTRIAL TEXTILES

Time Allotted: 3 Hours Full Marks: 70

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

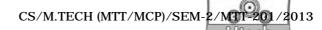
Answer any *five* questions. $5 \times 14 = 70$

- 1. a) Briefly discuss the UHMWPE fibre manufacturing process by 'Gel-spinning' technique. 7
 - b) "Ordinary polyethyline fibre is difficult to use in apparel application. But polyethylene fibre made from ultra-high molecular weight polyethylene polymer can use for bullet proof vests." Explain the statement.
 - c) Give atleast three application of UHMWPE fibre. 2
- 2. a) Briefly discuss the glass fibre production process. 7
 - b) Write the names of different types of glass fibre found in market and their nature.
 - c) Make a chart on application of glass fibre. 2

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3.	a)	representative model.
	b)	From the above which one has more impact on tensile properties of fibre ? Explain.
	c)	Make a comparative study on comodity fibre-forming polymeric chain and rigid rod polymeric chain.
4.	a)	"Kavlar fibre has more thermal and chemical resistance and also mechanical strength." Justify the statement. 5
	b)	Why PEEK fibre shows chemical inertness?
	c)	Write atleast three application of each fibre.
5.	a)	What are the main functions of wound dressings products?
	b)	Discuss in detail about the classification of modern wound dressing product.
6.	a)	Explain 'Moist environment is most suitable for wound healing".
	b)	Discuss in detail about 'two speciality fibre' used in medical textile. 3 + 3
	c)	Why collagen fibre is the main load bearing part of connective tissue?
7.	a)	Explain the process of soil consolidation based on an 'idealised system composed of a SPRING' with schematic diagram.
	b)	Give the mathematical model of separation function of geotextile material used for road construction.
	c)	Explain 'Blinding and Clogging' of geo-textile material. 2
	d)	What are different types of drain used for geo-technical application?



- 8. a) What are basic selection citerion for protective textile / fabric / fibre ?
 - b) Give detail schematic of diagram of materials and technologies for manufacturing protective textiles. 4
 - c) What are the comfort and survival factors in cold protective clothing?
 - d) Give the structural model of a cold weather protective clothing.

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