KUMARAGURU
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Register Number: …….

B.TECH DEGREE EXAMINATIONS: DEC 2014

(Regulation 2009)

Second Semester

TEXTILE TECHNOLOGY

TTX101: Textile Fibers

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

Answer ALL Questions

PART A (10 x 1 = 10 Marks)

1. Which one of the following is not a requirement for fibre forming polymers?
   a) Long chain molecules b) Linear molecule
   c) Higher molecular weight d) Cross-linked polymeric molecules
2. Molecular weight of a polymer = DP x –
   a) Orientation b) Crystallinity
   c) Molecular weight of the repeat unit d) Viscosity
3. Which one of the following is not an impurity of cotton fibre?
   a) Wax b) Protein c) Pectin d) Cellulose
4. Cross-sectional shape of the silk filament is ----
   a) Circular b) Triangular c) Hexagonal d) Bean shape
5. Modifiers are used in the manufacture of
   a) Viscose rayon b) HWM rayon c) Curprammonium rayon d) Acetate rayon
6. Spider silk is known for its ---
   a) Elongation b) Crystallinity c) Toughness d) Orientation
7. Select the stabilizer used in Nylon 6 manufacture.
   a) Acetone b) Acetic Acid c) Acetic anhydride d) Dimethyl ether

8. Cross sectional shape of wet spun acrylic is ---

a) Bean shape b) Circular shape c) Irregular shape d) Triangular shape

9. Which one of following could be made as water soluble fibre?

a) Spandex b) PVC c) Carbon d) PVA

10. Select the inorganic fibre from the following.

a) Carbon b) Glass c) PVA d) PVC

PART B (10 x 2 = 20 Marks)

11. Give the typical molecular weights of apparel grade and technical grade fibres.
12. Define Orientation of molecules in fibre.
13. List different methods of retting followed in jute fibre production.
14. Give an example for unicellular and multicellular vegetable fibres.
15. Differentiate between secondary and triacetate fibres.
16. Name any two eco-friendly solvents used to produce regenerated cellulosic fibres.
17. Name the monomers used in the manufacture of Nylon 6 and Nylon 6, 6.
18. Is it possible to produce fibres out of 100% PAN? Justify.
19. List different grades of glass fibres.
20. How do we get high elongation in the case of spandex fibres?

PART C (5 x 14 = 70 Marks)

21. a) (i) Compare the essential and desirable properties of textile fibres. (8)

(ii) Summarize different methods used to express the molecular weight of a polymer. (6)

(OR)

b) (i) Classify textile fibres based on their source. (7)

(ii) Compare thermoplastic and thermoset materials. (7)

22. a) (i) Summarize the physical and chemical properties of cotton fibres. (7)

(ii) Explain the method of grading of wool fibres. (7)

(OR)

b) (i) Compare the properties of different silk fibres. (7)

(ii) Compare the properties of banana fibres and pineapple fibres. (7)

23.	a)	(i)	Explain the process of manufacturing viscose rayon with a flowchart.	(8)
		(ii)	Explain the process of manufacturing casein fibres.	(6)
			(OR)	
	b)	(i)	Explain the process of manufacturing triacetate fibres.	(9)
		(ii)	Give the spin bath composition used in the manufacture of polynosic fibres.	(5)
24.	a)	(i)	Explain the process of manufacturing PET using two different routes.	
	b)	(i)	List the various comonomers used in modacrylic manufacture and explain their functions.	(7)
		(ii)	Explain the problems associated with the manufacture of PP fibre.	(7)
25.	a)	(i)	List various methods used to identify cotton fibres.	(7)
		(ii)	Summarize the properties of carbon fibres.	(7)
	b)		Compare the methods used to identify (i) cotton and viscose, (ii) wool and silk, (iii) acrylic and PVA fibres	

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