Register Number ……..

M.TECH. DEGREE EXAMINATIONS: DECEMBER 2009

First Semester

TEXTILE TECHNOLOGY

TTX501: Theory of Textile Fibres

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

Answer ALL Questions:-

PART A (10 x 2 = 20 Marks)

1. State basic requirements of the fibre forming polymers.
2. How do you measure the degree of crystallinity using NMR technique?
3. What do you mean by artifact effect in SEM measurement?
4. How do you define the average degree of orientation of a fibre?
5. Name the textile fibre whose properties are well explained by fringed micellar model.
6. Define: Toughness of the fibre
7. List the factors that influence the conditioning of fibres.
8. Define: Relative Permittivity.
9. What are the structural defects that exist in the carbon fibres?
10. Name any two high performance fibres that do not show creep effect.

PART B (5 x 16 = 80 Marks)

11. a) Explain various structural models of fibres used to explain their properties.

(OR)

b) Write short notes on i) radial orientation in viscose and ii) structural differences between natural and synthetic fibres.

12. a) With a neat sketch explain the working principle of contact mode atomic force microscopy.

(OR)

b) Explain the principle and applications of X ray diffraction in textile fibres.

13. a) Explain the stress – Strain behaviour of various textile fibres with relevant graphs.

(OR)

b) Write short notes on i) mechanical conditioning ii) influence of test conditions on elastic recovery.

14. a) Explain the influences of various factors on electrical resistance of fibres.

(OR)

b) i) Calculate the time required for conditioning of single wool fibre whose diameter is 10^{-3} cm if the diffusion coefficient is 10^{-7} cm^2/s.

ii) Write short note on heats of sorption.

15. a) Explain briefly about the structure of carbon and glass fibres.

(OR)

b) Discuss the stress-strain properties of HM-HT fibres.

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