Register Number: ……

B.TECH. DEGREE EXAMINATIONS: NOV/DEC 2010

Third Semester

TEXTILE TEHCNOLOGY

U07TT303: Structure and Properties of Fibres

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

Answer ALL Questions:-

PART A (10 x 1 = 10 Marks)

1. X-Ray diffraction method gives detailed information only about

   (a) Amorphous regain (b) Crystalline regain (c) Both are correct (d) None of them

2. Hydrogen bond forms in between

   (a) Hydroxyl groups (b) Methyl groups (d) Amino groups (d) End groups

3. The standard temperate atmosphere is defined as one of

   (a) 67±2 % RH & 22±2°C (b) 68±2 % RH & 25±2°C

   (c) 65±2 % RH & 20±2°C (d) 60±2 % RH & 25±2°C

4. Shrinkage of twisted or interlaced structure due to

   (a) Drying (b) Finishing (c) Heating (d) Swelling

5. The energy needed to break the fibre is called

   (a) Toughness (b) Work of rupture (c) a and b are correct (d) None

6. The equation of motion must be considered in

   (a) Static testing (b) Dynamic testing (c) Friction testing (d) All are correct

7. The refractive index of a material varies with

   (a) Wavelength of light being transmitted and density

   (b) Wavelength of light being transmitted and temperature

   (c) Wavelength of light only

   (d) a and b are correct

8. Find the correct formula which is given by Lindberg & Gralen for finding inter-fibre friction.

   (a) $\mu = \log_e T2 / T1$ / $\prod n \beta$ (b) $\mu = \log_e T1 / T2$ / $\prod \beta$

(c) $\mu = \log_e T1 / T$ / $\prod n \beta$ (d) $\mu = \log_e T1 / T2$ / $n \beta$

9. The most important factor in determining the electrical resistance of textile material is

(a) Temperature (b) Density (c) Moisture (d) None of them.

10. The unit for thermal conductivity

(a) $Wm^{-1}k^{-1}$ (b) $mWm^{-1}k^{-1}$ (c) $mWmk^{-1}$ (d) $mWm^{-1}k$

PART B (10 x 2 = 20 Marks)

11. Draw the cross sectional view of cotton and viscose fibre
12. State the types of electron microscopy.
13. Write the relationship between moisture content and moisture region.
14. Define heats of sorption.
15. What is specific stress?
16. Define the term elastic recovery.
17. Define birefringence of fibre.
18. State the Amontons Law of friction and give the formula
19. Write the factors influencing dielectric nature of fibre.
20. What are Tg and Tm?

PART C (5 x 14 = 70 Marks)

21. a) Discuss the morphological and chemical structure of wool fibre.

(OR)

b) Briefly discuss about the working principle of infra-red radiation technique in the study of fibre structure.

22. a) Define the term heat of absorption? How will you measure them?

(OR)

b) Discuss the relation between regain and RH for various textile fibres.

23. a) Explain the stress strain behavior of various textile fibres at various humidity and temperature.

(OR)

b) Discuss in detail about the creep phenomena.

24. a) Explain the method of measuring the birefringence of textile fibres and also its importance.

(OR)

b)Explain the theory of fibre directional frictional effect.

25. a) Explain the measurement of resistance of textile fibre using null method.

(OR)

b) Write short note on:

(i) Heat setting of fibres. (7)

(ii) Dielectric properties of fibre. (7)

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