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SF-6585

B. E. II (Sem. IV) (T.T. & T.P.) Examination

May / June – 2011

Fibre Physics

Time : **3** Hours] [Total Marks : **100**

Instructions :

(1)

નીચે દર્શાવેલ ☛ નિશાનીવાળી વિગતો ઉત્તરવહી પર અવશ્ય લખવી.
Fillup strictly the details of ☛ signs on your answer book.

Name of the Examination :

☛ **B. E. 2 (Sem. 4) (T.T. & T.P.)**

Name of the Subject :

☛ **Fibre Physics**

☛Subject Code No. : **6 5 8 5** ☛Section No. (1, 2,.....) : **1&2**

Seat No. :

Student's Signature

(2) Answers to the two sections should be written in separate answer books.

(3) Figures to the right indicate full marks.

(4) Tie two sections separately.

SECTION - I

1 (a) Fill in the blanks : **10**

(i) The density of glass fibre is _____.

(ii) _____ is the only natural bicomponent fibre.

(iii) The standard moisture regain of cotton fibres is _____.

(iv) The cross section of silk fibre is _____.

(v) The amount of crystalline and amorphous regions in the fibre is defined as degree of polymerization.

(vi) In nuclear magnetic resonance a typical magnetic field of _____ Tesla is used.

(vii) The two important proteins of silk fibre are_____ and _____.

(viii) The wavelength of electromagnetic waves used for Infra Red Spectroscopy is between 1 and _____μm .

(ix) The cross section of cotton fibre is _____ shaped.

(x) The standard environment for textiles has a RH% of _____.

(b) Explain the gross morphology of cotton fibre in detail. **10**

2 Explain in detail the macro structure of the following fibres : 15

(i) Silk

(ii) Nylon

(iii) Cotton.

OR

2 Explain in detail the Microscopic appearance of the following fibres : 15

(i) Silk

(ii) Nylon

(iii) Cotton.

3 Write short notes on any **three** : 15

(i) Fringed micelle structure.

(ii) NMR technique

(iii) Gross morphology of cotton fibre

(iv) IR Spectroscopy.

SECTION - II

4 (a) Fill up the blanks : 5

(i) The acrylic fibre has a large transition about _____ degree C, which causes a very large decrease in stiffness.

(ii) In general, the values of coefficient of friction, μ range between _____ and _____.

(iii) The direction of electric field in an electromagnetic wave is known as _____.

(iv) _____ may be used as a measure of orientation in the fibre.

(b) Define : Yield Point. 2

(c) In stitching of fabrics, high friction causes trouble. Give reason. 3

(d) Explain the main mechanisms giving rise to an irreversible shrinkage. 5

(e) Discuss the factors determining the results of Tensile experiments. 5

5 (a) Explain null method of measurement of electric resistance. **5**

(b) Discuss the influence of : **10**

(i) Moisture

(ii) Impurities

On determining the resistance of textile materials.

OR

5 (a) Explain Null method of measurement of Electrical Resistance. **5**

(b) Explain the problems of static electricity. **10**

6 Write short notes on : (any **three**) **15**

(i) Lusture

(ii) Fibre friction and its importance

(iii) Effect of orientation on mechanical properties

(iv) Creasing.
