(Following Paper ID and Roll No. to be filled in your Answer Books)										
PAPER ID : Roll No.										

B.TECH.

Theory Examination (Semester-VI) 2015-16

STRUCTURE AND PROPERTIES OF FIBRE

Time : 3 Hours ***Max. Marks : 100***

Note: Attempt any five questions and all questions carry equal marks

1 Attempt any two parts of the following.

a) Explain the creep behavior of textiles along with the concept of primary and secondary creep in textile materials.
b) Explain the heat of absorption in case of textile material? Discuss about the quantitative theory of moisture absorption for directly and indirectly attached water molecules.
c) Calculate the moisture regain of cotton under ideal conditions by first principle.

2 Attempt any two parts of the following.

a) What is overall orientation? Discuss about the working principle of sonic modulus tester for overall orientation of textile fibres.
b) Describe Birefringence and its usefulness in determining the structure and properties of textile fibres?
c) Explain the optical behaviour of Textile Fibres.

3 Attempt any two parts of the following.

a) Explain the working principle of Differential Scanning Calorimeter (DSC)
b) Discuss about the various conclusions from a typical DSC thermograms of any textile material for both heating and cooling cycle.
c) Discuss about absorption and dichroism.

4 Attempt any two parts of the following.

a) Explain the concept of WAXD and SAXD. How they are useful in the study of fibre structure.
b) Prove that fibre crystallinity fraction can be determined by density gradient coloumn by measuring the density of fibres.
c) What is Thermomechanical analyser (TMA)? What are the specific applications of TMA in case of textile materials?

5 Attempt any two parts of the following.

a) What is Density Gradient column Discuss about the working principle of Density Gradient Column.
b) What is fibre friction? Discuss about the technique use to measure fibre to fibre friction by Gutherie and Oliver concept.
c) What is polydispersity? Differentiate between weight average molecular weight M_w and number average molecular weight M_n. Explain any one technique to calculate molecular weight of a polymer.