B. Tech.

(SEM. VI) EXAMINATION, 2006-07

STRUCTURE & PROPERTIES OF FIBRE

Time : 3 Hours] [Total Marks : 100

Note : Attempt all questions. All questions carry equal marks.

1. (a) Discuss the concept of molecular morphology of fibres and polymers.
   (b) What is lamellar single crystals? Describe the concept in details.

2. (a) What is osmometry? How it is used for determination of molecular weight of polymers?
   (b) What are the basic concepts of the method of investigating fibre structure? Discuss.

3. (a) What is orientation and crystallinity? How the stretching of polymer-chain effects orientation and crystallinity of fibres?
(b) Describe what is Infra-red spectroscopy? What is its significance with respect to polymers? Describe dichroism and its measurement by infra red spectroscopy.

4. (a) Discuss the determination of molecular chain orientation by x-ray diffraction method.

(b) Birefringence is an optical phenomenon but how birefringence will measure the overall orientation of textile fibre.

5. (a) What do you understand by creep behaviour of fibres? Discuss primary and secondary creep.

(b) Discuss the optical behaviour of textile materials at atomic level.