THE TEXTILE ASSOCIATION (INDIA)
GMTA EXAMINATION – 2018
SECTION – C PAPER – C.1
TEXTILE FIBRE SCIENCE

Date: 22.12.2018
MARKS: 100
Time: 10.00 am to 01.00 pm

Instructions:
1. Attempt any Six questions out of which Q.1 is Compulsory
2. Answer each next question on new page
3. Figures to the right indicate full marks
4. Illustrate your answers with neat sketches & flow charts wherever necessary
5. Use of non-programmable electronic pocket calculator is permissible
6. Mobile and any other communication devices are not allowed in the Examination hall.
7. Assume suitable data wherever necessary

Q1 a Write a note on ‘physical and chemical properties of silk and wool’. 10
    b Discuss the two phase model of semicrystalline structure of polyester fibre. 10
Q2 a Discuss the manufacture of polyester fibres with a neat diagram. 08
    b Describe the fine structure of cotton. 08
Q3 a Discuss the hydrophilicity of cotton fibre in relation to the molecular structure. 08
    b Discuss static electric properties of different textile fibres. 08
Q4 a What is isoelectric point? Discuss the zwitterion structure of silk fibre. 08
    b Discuss the primary structure of silk fibroin. 08
Q5 a Write a note on ‘Thermal properties of polyester fibre’ Comment on glass transition temperature. 08
    b Describe the measurement of thermal characteristics of Nylon using Differential Scanning Calorimetry. 08
Q6 a Discuss X Ray diffraction technique for elucidating the crystalline structure of silk. 08
    b What is Total molecular Orientation? Describe an experiment to find out birefringence in polyester fibre. 08
Q7 a Discuss the frictional characteristics of viscose fibres. 08
    b Describe the use of conducting fibres. 08
Q8 a Write a note on ‘Use of FTIR spectroscopic technique in describing the molecular structure of Silk’. 08
    b Discuss the tensile properties of cotton under dry and wet conditions. 08