THE TEXTILE ASSOCIATION (INDIA)
G.M.T.A (REVISED) EXAMINATION-2014
SECTION-C PAPER C-1
TEXTILE FIBRE SCIENCE

Date: 24.12.2014  Marks: 100  Time: 10am to 1 pm

Instructions: 1. Attempt six questions out of which Q.1 is compulsory
2. Answer each next main question on new sheet
3. Figure to the right indicate full marks
4. Illustrate your answer with sketches and flow chart wherever necessary
5. Use of nonprogrammable electronic pocket calculator permissible
6. Mobile and any other communication devices are not allowed in the examination hall.
7. Assume suitable data wherever necessary

Q.1
a. Describe the physical and chemical properties of silk and cotton fibres.  (10)
b. Explain hydrophobic and hydrophilic properties of different natural and manmade fibres.  (10)

Q.2
a. Explain the manufacture of regenerated cellulosic fibres with a neat diagram  (10)
b. Discuss the raw material used for manufacture of polyester fibres.  (06)

Q.3
a. Give an account of modification of polyester fibres.  (08)
b. Explain with a schematic diagram the manufacturing of polyamide fibres  (08)

Q.4
a. Explain the terms Crystalline and amorphous phases in fibres with a neat diagram  (08)
b. Describe two phase model of semicrystalline fibre forming polymers  (08)

Q.5
a. Describe the physical structure of cotton and silk  (10)
b. Explain the crystallinity and degree of orientation in textile fibres. (06)

Q.6 Explain the following: (15)
   i. Moisture Regain
   ii. Swelling of fibres
   iii. Heat of absorption
   iv. Moisture Hysteresis

Q.7
   a. Explain structure and tensile property correlation (08)
   b. Explain Flexural and torsional properties of textiles (08)

Q.8 Explain the following: (15)
   i. Amonton's law of friction
   ii. Birefringence
   iii. Electrical resistance and static electricity
   iv. Thermal conductivity