THE TEXTILE ASSOCIATION (INDIA)
ATA Part III Examination 2018
Paper A3-2
MANMADE FIBRE TECHNOLOGY
Date: 23.12.2018
Marks – 100
Time 10.00 am to 1.00 pm

Instructions:
1. Answer any six questions out of which Question No1 is compulsory.
2. Answer each next main question on a new page.
3. Figure to the right indicate full marks.
4. Illustrate your answers with sketches and flow chart wherever necessary.
5. Use of non-programmable electronic pocket calculator permitted.
6. Mobile and any other communication devices are not allowed in examination hall.
7. Assume suitable data wherever necessary.

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A. Match the following:
   i. Polyester fibre
   ii. Caprolactum
   iii. Viscose fibre
   iv. False twist textured yarn
   v. Air jet textured yarn
   a. Loops
   b. Crimps
   c. Synthetic fibre
   d. Wet spinning
   e. Monomer

B. Define the following:
   i. Crystallinity in fibre
   ii. Polymerisation
   iii. Texturising
   iv. Blended yarns
   v. Dimensional Stability of fibres

Q2
   a. Compare melt spinning, dry spinning and wet spinning processes.
   b. Why the strength of fibre increases and elongation of fibre decreases with increase in molecular orientation? Explain.

Q3
   a. Describe the manufacturing of nylon filament yarn with process parameters.
   b. Discuss about the tensile and thermal characteristics of polyester fibre.

Q4
   a. Why comonomer is added along with acrylonitrile in acrylic fibre manufacturing?
   b. Explain the characteristics of poly(acrylonitrile) fibre.
   c. Discuss the application of acrylic fibres.

Q5
   a. Explain the polymerization process in synthesis of polypropylene polymer.
   b. Describe the polypropylene staple fibre manufacturing process along with line diagram.
   c. Explain the characteristics of polypropylene fibres

Q6
   a. State the differences between staple fibre and filament yarn.
   b. What is partially oriented yarn? State its advantages.
   c. Describe the tensile characteristics of viscose fibre.

Q7
   a. Describe air jet texturising process with a line diagram and process parameters.
   b. What is crimp rigidity of a textured yarn? Describe the method of determination of the crimp rigidity.
   c. What is the function of secondary heater in false twist texturing process?

Q8
   a. Compare blow room blending of fibres with draw frame blending.
   b. What is tinting of fibres? Explain
   c. Explain the manufacturing of polyester/cotton blended yarns with a flow chart