



GENERAL INSTRUCTIONS TO THE CANDIDATES

1. Candidates are instructed to answer the questions as per Bloom's Taxonomy knowledge level (K₁ to K₆)
2. Candidates are strictly instructed not to write anything in the question paper other than their roll number.
3. Candidates should search their pockets, desks and benches and handover to the Hall Superintendent/ Invigilator if any paper, book or note which they may find therein as soon as they enter the examination hall.
4. Candidates are not permitted to bring electronic watches with memory, laptop computers, personal systems, walkie-talkie sets, paging devices, mobile phones, cameras, recording systems or any other gadget / device /object that would be of unfair assistance to him / her.
5. Corrective measures as per KCT examination policies will be imposed for malpractice in the hall like copying from any papers, books or notes and attempting to elicit the answer from neighbours.

B.TECH DEGREE EXAMINATIONS: DEC 2015

(Regulation 2014)

Third Semester

TEXTILE TECHNOLOGY

U14TXT301: Manufactured Fibre Technology

Time: Three Hours

Maximum Marks: 100

**Answer all the Questions:-
PART A (10 x 1 = 10 Marks)**

- | | | |
|---|---|--------------------|
| 1. Typical length of a molecule for fibre | CO1 | [K ₂] |
| a) 10 A | b) 1000 A | |
| c) 1 mm | d) 10 mm | |
| 2. A good fibre forming polymer should NOT have | CO1 | [K ₂] |
| a) Linear polymeric chain | b) Branched polymeric chain | |
| c) High degree of polymerization | d) High inter-molecular interaction | |
| 3. Consider the following Assertion [A] and Reason [R] | CO2 | [K ₂] |
| [A] Highly oriented polymers possess excellent tensile properties. | | |
| [B] Drawing of the filament increases the orientation. | | |
| a) Both A and R are individually true and R is correct explanation of A | b) Both A and R are individually true and R is not correct explanation of A | |

B Cellulose Xanthate
C Denaturation
D Acetylation

2 Homogeneous mixing
3 Cellulose acetate
4 Yellow crumbs

	A	B	C	D
a)	2	4	1	3
b)	2	3	4	1
c)	1	4	2	3
d)	2	1	3	4

PART B (10 x 2 = 20 Marks)

(Answer not more than 40 words)

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|---|------------------------|
| 11. Illustrate the oriented form of amorphous and crystalline regions in a fibre. | CO1 [K ₃] |
| 12. List the functions of extruder in melt spinning process. | CO1 [K ₁] |
| 13. Compare the properties of standard viscose rayon and HWM rayon. | CO2 [K ₁] |
| 14. What is encapsulation technique? | CO2 [K ₁] |
| 15. List the specialty polyester fibres with end uses. | CO3 [K ₁] |
| 16. Contrast the PE from PP by any two valid points. | CO3 [K ₁] |
| 17. What is membrane osmometry? | CO4 [K ₁] |
| 18. Tell the reason for elasticity of polyurethane fibres. | CO4 [K ₂] |
| 19. Recall on tow to top conversion. | CO5 [K ₁] |
| 20. Relate the functions and ingredients of a spin finish solution. | CO5 [K ₁] |

Answer any FIVE Questions:-

PART C (5 x 14 = 70 Marks)

(Answer not more than 300 words)

Q.No. 21 is Compulsory

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| 21. Describe briefly the various components of melt spinning machine with neat sketch. | CO1 [K ₂] |
| 22. Illustrate the manufacturing process of viscose rayon with schematic diagrams and formula. | CO2 [K ₃] |
| 23. Describe the manufacturing of Nylon 6,6 with suitable diagrams, formulae and process conditions. | CO3 [K ₂] |

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| 24. Demonstrate the molecular level characterization of polymers using thermogravimetry and differential thermal calorimetry analysis with suitable diagrams, formulae and process conditions. | CO4 | [K ₂] |
| 25. Discuss the drawing and heat setting mechanism of thermoplastic polymers using suitable diagrams and process attributes. | CO5 | [K ₂] |
| 26. Compare the false twist and air texturisation techniques in the context of manufacturing, yarn properties and applications. | CO5 | [K ₃] |
