Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VIII • EXAMINATION – SUMMER • 2015

Subject Code: 182906 **Date: 05/05/2015**

Subject Name: Modern Fibre Technology

Time:10.30AM-01.00PM **Total Marks: 70**

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1	**(a)**	Discuss the stages involved in manufacturing and application area of manufactured fibers.	**07**
	(b)	Explain the two important thermal transitions in a Semicrystalline polymer.	**07**
Q.2	**(a)**	Write in short on characterization of polymers at the molecular level.	**07**
	(b)	How measurement of density can be used for estimating crystallinity of polymers? Explain in short preparation of density gradient column.	**07**
		OR	
	(b)	Write a short note on Tencel fiber	**07**
Q.3	**(a)**	Compare Dry spinning and Wet spinning.	**07**
	(b)	Discuss the role of variations of following along the spin line: i) Effect of variable throughput ii) The consequence of crystallization	**07**
		OR	
Q.3	**(a)**	Write in short on DSC or DTG.	**07**
	(b)	Write in short on following two methods of measurement of degree of set: (i) Critical dissolution time (ii) Recovery from bending strains.	**07**
Q.4	**(a)**	With a neat sketch explain a typical Dry-spinning cell and write on Spin stretch during Dry spinning.	**07**
	(b)	Explain the principle of melt spinning process and discuss the types of cooling systems in melt spinning process.	**07**
		OR	
Q.4	**(a)**	Write on three popular approaches for producing conjugated bicomponent micro filaments.	**07**
	(b)	Schematically represent working system of Gel permeation chromatography.	**07**
Q.5	**(a)**	State the functions of Spin finish and write on the Spin finish requirements for staple fibre production.	**07**
	(b)	Write on manufacture of PPTA (Kevlar) fiber through dry-jet-wet spinning process.	**07**
		OR	
Q.5	**(a)**	Write a short note on Electron microscope.	**07**
	(b)	Explain in detail the mechanism of temporary and permanent set. What kinds of changes occur in crystal size and dispersion with heat treatment temperature?	**07**

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