Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE SEMESTER IV– EXAMINATION – SUMMER 2016

Subject Code: 182906 **Date: 16/05/2016**

Subject Name: Modern Fibre Technology

Time: 10:30 AM to 01:00 PM **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 importance of properties molecular size, crystallinity, orientation and fibre morphology .	**07**
	(b)	Explain two important thermal transitions in a semicrystalline polymer.	**07**
Q.2	**(a)**	Describe the manufacture of Kevlar fibre by dry-jet wet spinning process.	**07**
	(b)	Explain structure development of PET filaments and Nylon 6 at high speed .	**07**
		OR	
	(b)	Write a note on Infrared Spectroscopy.	**07**
Q.3	**(a)**	Give special features of melt spinning line and explain quench system.	**07**
	(b)	Explain melt spinning variables and state the conditions to be fulfilled for spinning without a break.	**07**
		OR	
Q.3	**(a)**	Discuss the factors which differentiate the wet spinning from dry spinning.	**07**
	(b)	Explain the fibre cross-section formation and spin stretch during dry and wet spinning.	**07**
Q.4	**(a)**	Schematically represent working system of Gel Permeation Chromatography.	**07**
	(b)	Briefly discuss about Electron microscope.	**07**
		OR	
Q.4	**(a)**	Write a note on DSC.	**07**
	(b)	With a neat sketch discuss on fibre cross-section and respective spinneret design for trilobal, hexalobal and hollow fibres. .	**07**
Q.5	**(a)**	State the functions of spin finish.	**07**
	(b)	Describe on three popular approaches for producing conjugated bicomponent micro filaments.	**07**
		OR	
Q.5	**(a)**	Discuss about the application methods for spin finish .	**07**
	(b)	Explain in detail about temporary and permanent set. What kind of changes occurs in crystal size and dispersion at heat treatment temperature? .	**07**

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