Seat No.:	Enrolment No.

GUJARAT TECHNOLOGICAL UNIVERSITY

ME – SEMESTER-1 (NEW) EXAMINATION – WINTER 2016

Date:06/01/2017

Subject Code: 2712407

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	2.	Attempt all questions. Make suitable assumptions wherever necessary. Figures to the right indicate full marks.	
Q.1	(a)	Define following 1. Interfacial adhesion 2. Immiscible polymer blend 3. Homologous Polymer blend 4. Compatible polymer blend 5. Compatibilizer 6. Metastable miscibility 7. IPN	07
	(b)	Write a note on: Differential Scanning Calorimetry (DSC).	07
Q.2	(a) (b)	How to select blend components? Explain. Discuss various techniques for determination of polymer-polymer miscibility. OR	07 07
	(b)	Write a note on: Reactive compatibilization.	07
Q.3	(a)	(i) A styrene-butadiene copolymer is found to contain 47% styrene and 53% butadiene (by weight). The Tgs of styrene and butadiene are 112 and -78 °C respectively. Determine the Tg of this copolymer.	
		(ii) Why do polystyrene (PS) and poly(phenylene oxide) (PPO) form a miscible Blend?	03
	(b)	Explain light microscopy for characterization of polymer blends with neat diagram and application.	07
Q.3	(a)	OR Write a note on: Two roll mill.	07
	(b)	Discuss PVC/EVA and PVC/CPE blends.	07
Q.4	(a)	Explain Scanning Electron Microscopy (SEM) for characterization of polymer blends with neat diagram, specimen preparation and application.	07
	(b)	Describe the properties and applications of PC/PET and PC/ABS blends. OR	07
Q.4	(a)	Which properties of polymer affect permeability? Discuss various barrier films from polymer alloys/blends.	07
	(b)	Explain Phase diagram showing LCST and UCST behavior of polymer blends.	07
Q.5	(a)	Explain Transmission Electron Microscopy (TEM) for characterization of polymer blends with neat diagram.	07
	(b)	Discuss the role of specific interaction in miscible system with examples. OR	07
Q.5	(a) (b)	Explain X-ray scattering technique with its application. Differentiate between (i) Single screw and twin screw extruder for compounding (ii) SEM and TEM.	07 07
