Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VIII • EXAMINATION – SUMMER • 2015

Subject code: 182305 **Date:05/05/2015**
Subject Name: Biopolymers
Time: 10.30AM-01.00PM
Instructions: **Total Marks: 70**

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

Q.1	**(a)**	Advantages and Disadvantages of Synthetic Polymer and Biodegradable Polymer and their Impact on the Environment.	**07**
	(b)	Explain in details mixing of biomaterials with plastics: equipments details and process details	**07**
Q.2	**(a)**	Are biodegradable plastic bags a solution to the plastic carry bag problem? Give proper scientific explanations.	**07**
	(b)	Will degradable plastics break down in landfill? Give proper scientific explanations.	**07**
		OR	
	(b)	Write short note on Cellulose Based Green Bioplastics for Biomedical Engineering.	**07**
Q.3	**(a)**	Describe the principles and applications of differential scanning calorimetry with respect to Bio-polymers.	**07**
	(b)	What are the advantages of Transmission Electron Microscopy (TEM) over Scanning Electron Microscopy (SEM)?	**07**
		OR	
Q.3	**(a)**	Describe the principles and applications of Scanning Electron Microcopy with respect to biopolymers.	**07**
	(b)	Write a short note on (i) Scanning Electron Microscope (SEM) (ii) Transmission Electron Microscopy (TEM).	**07**
Q.4	**(a)**	Write a short note on (i) Natural biodegradable polymer & (ii) Synthetic biodegradable polymer.	**07**
	(b)	List out the different thermal analysis techniques used to characterize Bio-polymer. Explain in detail any one of it.	**07**
		OR	
Q.4	**(a)**	Explain in details Long Bio-fibers and Engineered Pulps for High Performance Bioplastics and Biocomposites.	**07**
	(b)	Explain Various Forms of Dry Ingredients in Bio-plastics manufacturing and Processing Applications.	**07**
Q.5	**(a)**	Define Bio-based Materials in Food Packaging Applications. Explain in details Starch as a Biopolymer in Construction and Civil Engineering.	
	(b)	1. Define Bio-based Materials in Food Packaging Applications. 2. Explain in details Starch as a Biopolymer in Construction and Civil Engineering.	**07**
		OR	
Q.5	**(a)**	Write short notes on (i) Non-biological degradable polymer& (ii) Biological degradable polymer.	**07**
	(b)	Write short notes on (i) Non-biological degradable polymer& (ii) Biological degradable polymer.	**07**

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