Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

ME - SEMESTER– III • EXAMINATION – SUMMER 2015

Subject Code: 732401 **Date: 02/05/2015**

Subject Name: Plastics Packaging Technology

Time: 2:30 pm to 5:00 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)**	Give properties and applications of Polystyrene (PS) and Polyamides (Nylons) used in plastics packaging.	**07**
	(b)	What is blown up ratio? Describe blown film manufacturing process with line diagram.	**07**
Q.2	**(a)**	What is the importance of using multilayer aluminum metalized plastic film? Explain multi layer film extrusion process for snacks.	**07**
	(b)	Give properties and applications of Polyethylene Terephthalate (PET) used in plastics packaging. Compare the properties of Polyethylene Terephthalate (PET) and Polyethylene Naphthalate (PEN).	**07**
		OR	
	(b)	Explain various types of heat sealing used in plastics packaging.	**07**
Q.3	**(a)**	Explain Thermoform-fill-seal (TFFS) process. Give examples of products packed using this system.	**07**
	(b)	What do mean by clarity and haze? Discuss procedure to determine clarity and haze in plastics packaging material.	**07**
		OR	
Q.3	**(a)**	Which plastics materials are used for blister packaging and why? Discuss properties and application of any two materials.	**07**
	(b)	Give the properties and applications of LDPE, HDPE and LLDPE used as plastics packaging material.	**07**
Q.4	**(a)**	Explain injection stretch blow molding process with neat diagram.	**07**
	(b)	Explain test method to determine co-efficient of friction of plastics films.	**07**
		OR	
Q.4	**(a)**	Explain Hot stamping and Reverse printing with diagram.	**07**
	(b)	How barrier properties are important in plastics packaging? Explain oxygen transmission rate (OTR).	**07**
Q.5	**(a)**	Why polyolefins need surface treatment? List the surface treatment processes carried out on plastic packaging materials. Explain corona treatment in detail.	**07**
	(b)	Write notes on: Dart impact test procedure for plastic film.	**07**
		OR	
Q.5	**(a)**	What is recycling? Explain recycling of plastics container by suitable examples.	**07**
	(b)	Write a note on Pollutants such as Chloro Fluoro Carbon (CFC) and dioxin.	**07**

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