Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

Diploma Engineering - SEMESTER–II • EXAMINATION – WINTER 2013

Subject Code: 3322301 **Date: 01-01-2014**

Subject Name: Polymer Chemistry

Time: 10:30 am - 01:00 pm **Total Marks: 70**

Instructions:

1. **Attempt any five questions.**
2. **Make Suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**
4. **Use of programmable & Communication aids are strictly prohibited.**
5. **Use of only simple calculator is permitted in Mathematics.**
6. **English version is authentic.**

Q.1		Answer any seven out of ten.	**14**
	1.	Explain Glass Transition Temperature of polymer. Give Tg of any three polymers.	
	2.	What is degradation? Explain with example.	
	3.	Explain Molecular Weight of polymer with example.	
	4.	Define the term Hydrogenation.	
	5.	Define the term Polymerization. List methods of it.	
	6.	Explain Surfactants. List any three example of it.	
	7.	What is Polydispercity?	
	8.	Define : Thermal Degradation.	
	9.	Define : Aminolysis.	
	10.	Explain Glassy State of polymer in brief	
Q.2	(a)	Explain factor affecting thermal degradation with example.	**03**
		OR	
	(a)	What is mechanical degradation? Explain mechanical degradation of natural rubber.	**03**
	(b)	Explain photo degradation process with example.	**03**
		OR	
	(b)	Explain ultrasonic degradation process with example.	**03**
	(c)	Explain process of emulsion polymerization.	**04**
		OR	
	(c)	Differentiate : solution polymerization V/S suspension polymerization	**04**
	(d)	Write importance of Glass Transition Temperature.	**04**
		OR	
	(d)	Explain factors affecting Glass Transition Temperature.	**04**
Q.3	(a)	Give short note on industrial manufacturing LDPE.	**03**
		OR	
	(a)	Give short note on industrial manufacturing HDPE	**03**
	(b)	Give short note on industrial manufacturing PP	**03**
		OR	
	(b)	Give short note on industrial manufacturing PS	**03**
	(c)	Give short note on industrial manufacturing PVC	**04**
		OR	
	(c)	Give short note on industrial manufacturing PMMA	**04**
	(d)	Give short note on industrial manufacturing PF	**04**
		OR	
	(d)	Give short note on industrial manufacturing UF	**04**
Q.4	(a)	Explain organic and inorganic polymer with suitable example.	**03**

OR

	(a)	Explain homo-chain and hetero-chain polymer with suitable example.	**03**
	(b)	Describe linear polymer with near sketch and with suitable example.	**04**

OR

	(b)	Describe branched polymer with near sketch and with suitable example.	**04**
	(c)	Explain number average and weight average molecular weight with example.	**07**
Q.5	(a)	Write a short note on hydrolysis.	**04**
	(b)	Write a short note on acidolysis.	**04**
	(c)	Explain process of bulk polymerization.	**03**
	(d)	Write a short note on polymer dissolution process.	**03**

****

****