Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

Diploma Engineering - SEMESTER–I • EXAMINATION – WINTER 2013

Subject Code: 3312301 **Date: 21-12-2013**

Subject Name: Basic Polymer Chemistry

Time: 02:30 pm - 05:00 pm **Total Marks: 70**

Instructions:

1. **Attempt all 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. Define the term Monomer.
2. Give comparison of thermoplastic and thermoset polymers.
3. What is Bond energy?
4. Give definition of Bond angel.
5. What is Functionality?
6. What is Organic compound? List any four Organic compound along with its chemical formula.
7. What is polymer? Give four example of it.
8. Define the term Repeating unit. Explain with example.
9. Explain Copolymer. Give two example of it.
10. Define the term Polymerization. List its types.

Q.2 (a) Explain ionic bond with suitable example. **03**

OR

(a) Explain covalent bond with suitable example. **03**

(b) Give brief note on dipole moment and Electronegativity. **03**

OR

(b) Give classification of hydrocarbon with example of each type. **03**

(c) Give classification of functional group. List example of each type. **04**

OR

(c) List rules for nomenclature of organic compound. **04**

(d) Define the term hybridization. Explain hybridized state of Carbon atom. **04**

OR

(d) Explain in brief SP-II hybridization of Carbon with suitable example. **04**

Q.3 (a) Give classification of polymer based on source with example. **03**

OR

(a) Give classification of polymer based on structure with example. **03**

(b) Give classification of polymer based on nature with example. **03**

OR

(b) Give classification of polymer based on application with example. **03**

(c) Write brief note on linear polymer. **04**

OR

(c) Write brief note on branched polymer polymer. **04**

(d) Write brief note on isotactic polymer. **04**

OR

(d) Write brief note on copolymer. **04**

Q.4 (a) Write any three reaction of polycondensation polymerization. **03**

OR

	(a)	Write initiation step of co-ordination polymerization with formula.	**03**
	(b)	Explain the formation of monomer catalyst complex in co-ordination polymerization.	**04**

OR

	(b)	Explain free radical co-polymerization in brief.	**04**
	(c)	Describe Anionic polymerization in detail.	**07**
Q.5	(a)	Write initiation step of free radical polymerization with formula.	**04**
	(b)	Write initiation step of cationic polymerization with formula.	**04**
	(c)	Write termination step of free radical polymerization with formula.	**03**
	(d)	Explain the effect of functionality on structure of polymer.	**03**

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