C.U.SHAH UNIVERSITY Summer Examination-2016

Subject Name: Macromolecular Physical Chemistry - I

Subject Code: 5SC0	2CHC3		Branch: M.Sc. (Chemistry)		
Semester: 2	Date :	09/05/2016	Time : 10:30 To 01:30	Marks : 70	

Instructions:

- (1) Use of Programmable calculator and any other electronic instrument is prohibited.
- (2) Instructions written on main answer book are strictly to be obeyed.
- (3) Draw neat diagrams and figures (if necessary) at right places.
- (4) Assume suitable data if needed.

SECTION – I

Q-1		Attempt the Following questions	(07)
	a.	Define Monomer	(1)
	b.	What is polydispersity?	(1)
	c.	Write expression for number average degree of polymerization	(1)
	d.	Give two examples of regulators	(1)
	e.	Write the full form and decomposition reaction of AIBN	(1)
	f.	Define fibers	(1)
	g.	Define chain polymerization	(1)
Q-2		Attempt all questions	(14)
	a.	Explain classification of polymers	(5)
	b.	Write a note on functionality of monomers	(5)
	c.	What are copolymers? Discuss its various types.	(4)
		OR	
Q-2		Attempt all questions	(14)
	a.	Discuss Stereo regular polymers	(5)
	b.	Write a note on different type of polymer chain.	(5)
	c.	Give the structure of following polymer repeating unit	(4)
		1. Poly acrylic acid 2. Polybenzimidazole 3. Polyvinyl formal 4. starch	
Q-3		Attempt all questions	(14)
	a.	Explain kinetics of free radical copolymerization. Also discuss effect of reactivity	(7)
		ratio on degree of polymerization	
	b.	Discuss methods of free radical polymerization	(7)
		OR	

Page 1 || 2



Q-3		Attempt all questions		
-	a.	Discuss factors affecting free radical polymerization and properties of resulting polymer	(7)	
	b.	Explain Anionic polymerization and discuss its kinetics.	(7)	
		SECTION – II		
Q-4		Attempt the Following questions	(07)	
		a. Define polycondensation	(1)	
		b. Define aminolysis	(1)	
		c. Write the reaction of transformation of polyvinyl alcohol to poly vinylacetal	(1)	
		d. Give one example of ring scission polymerization	(1)	
		e. What is the effect of monomer concentration on polycondensation reaction	(1)	
		f. Write one reaction of cross linked polymer	(1)	
		g. Define curing	(1)	
Q-5		Attempt all questions	(14)	
	a.	Write a note on stepwise polymerization	(5)	
	b.	Discuss kinetics and mechanism of ring scission polymerization	(5)	
	c.	Explain thermal effect of polymer degradation	(4)	
		OR		
Q-5		Attempt all questions		
	a.	Discuss vulcanization of rubber	(5)	
	b.	Explain melt polycondensation and intrafacial polycondensation	(4)	
	c.	Explain thermodynamics of ring transformation to linear polymer.	(5)	
Q-6		Attempt all questions	(14)	
	a.	Discuss the effect of monomer concentration and temperature on direction of	(7)	
		polycondensation reaction.		
	b.	Explain polycondensation equilibrium and molecular weight of polymer.	(7)	
		OR		
Q-6		Attempt all Questions		
	a.	Discuss kinetics of poly condensation polymerization	(7)	
	b.	Explain molecular weight control in Polycondensation polymerization	(7)	



