C. U. SHAH UNIVERSITY
Winter Examination-2018

Subject Name: Physical Chemistry-II

Subject Code: 5SC02PCH1   **Branch: M.Sc. (Chemistry)**

Semester: 2   Date: 25/10/2018   Time: 02:30 To 05:30   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	Give only two differences between simple and polymer molecules.	1
	b	What do you mean by regulators?	1
	c	What is called elastomers?	1
	d	Define oligomers.	1
	e	Write the full forms of PMMA and PAN.	1
	f	Give the structural formula for repeating unit of poly Vinyl chloride.	1
	g	Define fibers	1

Q-2		Attempt all questions	(14)
	a	Explain the kinetics of anionic polymerization.	05
	b	Write a note on classification of polymers.	05
	c	Write note on atactic, isotactic and syndiotectic polymers.	04

OR

Q-2		Attempt all questions	(14)
	a	Explain the copolymerization and kinetics of copolymerization.	07
	b	Explain the kinetics of free radical polymerization.	07

Q-3		Attempt all questions	(14)
	a	Explain the methods of initiating free radical polymerization.	07
	b	Explain the emulsion polymerization and bulk polymerization.	07

OR

Q-3		Attempt all questions	(14)
	a	Explain the kinetics of cationic polymerization.	05

b	What are copolymers? Explain the various type copolymers.		**05**
c	Discuss the factors affecting free radical polymerization.		**04**

SECTION – II

Q-4		**Attempt the Following questions**	**(07)**
	a	Define hydrolysis.	**01**
	b	What is called ring scission polymerization?	**01**
	c	Define polycondensation?	**01**
	d	Why polyuria formation proceeds at higher rate than the formation of polyurethane?	**01**
	e	Why number of bonds does not change in ring-scission polymerization?	**01**
	f	Give the equation for relation between average molecular weight and activator concentration.	**01**
	g	What is effect of monomer concentration on polycondensation reaction?	**01**
Q-5		**Attempt all questions**	**(14)**
	a	Explain kinetics ring-scission polymerization.	**07**
	b	Explain the melt and interfacial methods of polycondensation polymerization.	**07**

OR

Q-5		**Attempt all questions**	**(14)**
	a	Explain the thermodynamics of ring transformation to a linear polymer.	**07**
	b	Explain the kinetics of polycondensation polymerization.	**07**
Q-6		**Attempt all questions**	**(14)**
	a	Explain the mechanism of ring-scission polymerization with suitable example.	**07**
	b	Explain the factors affecting free radical polymerization.	**07**

OR

Q-6		**Attempt all Questions**	**(14)**
	a	Explain the methods of initiating free radical polymerization.	**07**
	b	Explain the cross-linking and cyclisation reaction.	**07**