

Enrollment No: \_\_\_\_\_

Exam Seat No: \_\_\_\_\_

# C. U. SHAH UNIVERSITY

## Summer Examination-2018

Subject Name: Physical Chemistry-II

Subject Code: 5SC02PCH1

Branch: M.Sc. (Chemistry)

Semester: 2 Date: 27/04/2018

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.
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**SECTION – I**

- Q-1 Attempt the Following questions (07)**
- a Define polymers 1
  - b Define the term oligomers 1
  - c What do you mean by elastomers? 1
  - d Define regulators 1
  - e Write the full forms of PMMA and PVC. 1
  - f Give the structural formula for repeating unit of poly acrylonitrile. 1
  - g Define fibers 1
- Q-2 Attempt all questions (14)**
- a Explain the classification of polymers. 05
  - b What are copolymers? Discuss the types of various copolymers. 05
  - c Explain atactic, isotactic and syndiotactic polymers. 04

**OR**

- Q-2 Attempt all questions (14)**
- a Explain the methods of initiating free radical polymerization. 07
  - b Explain the kinetics of free radical polymerization. 07
- Q-3 Attempt all questions (14)**
- a Explain the copolymerization and kinetics of copolymerization. 07
  - b Explain the emulsion polymerization and bulk polymerization. 07

**OR**

<b>Q-3</b>	<b>Attempt all questions</b>	<b>(14)</b>
<b>a</b>	Explain the kinetics of cationic polymerization.	<b>05</b>
<b>b</b>	Explain the kinetics of anionic polymerization.	<b>05</b>
<b>c</b>	Discuss the factors affecting free radical polymerization.	<b>04</b>

### SECTION – II

<b>Q-4</b>	<b>Attempt the Following questions</b>	<b>(07)</b>
<b>a</b>	What do you mean by polycondensation?	<b>01</b>
<b>b</b>	Define ring scission polymerization	<b>01</b>
<b>c</b>	Give the reaction of ring-scission polymerization of ethylene oxide in presence of sodium methoxide.	<b>01</b>
<b>d</b>	Why does polyuria formation proceed at higher rate than the formation of polyurethane?	<b>01</b>
<b>e</b>	Why number of bonds does not change in ring-scission polymerization?	<b>01</b>
<b>f</b>	Give the equation for relation between average molecular weight and activator concentration.	<b>01</b>
<b>g</b>	What is effect of monomer concentration on polycondensation reaction?	<b>01</b>

<b>Q-5</b>	<b>Attempt all questions</b>	<b>(14)</b>
<b>a</b>	Explain the kinetics of polycondensation polymerization.	<b>07</b>
<b>b</b>	Explain the melt and interfacial methods of polycondensation polymerization.	<b>07</b>

**OR**

<b>Q-5</b>	<b>Attempt all questions</b>	<b>(14)</b>
<b>a</b>	Explain the thermodynamics of ring transformation to a linear polymer.	<b>07</b>
<b>b</b>	Explain kinetics ring-scission polymerization.	<b>07</b>

<b>Q-6</b>	<b>Attempt all questions</b>	<b>(14)</b>
<b>a</b>	Explain the mechanism of ring-scission polymerization with suitable example.	<b>07</b>
<b>b</b>	Explain the chemical degradation.	<b>07</b>

**OR**

<b>Q-6</b>	<b>Attempt all Questions</b>	<b>(14)</b>
<b>a</b>	Explain the physical degradation.	<b>07</b>
<b>b</b>	Explain the cross-linking and cyclisation reaction.	<b>07</b>

