

Enrollment No: _____

Exam Seat No: _____

C.U.SHAH UNIVERSITY

Summer Examination-2017

Subject Name: Physical Chemistry-II

Subject Code: 5SC02PCH1

Branch: M.Sc. (Chemistry)

Semester: 2

Date: 06/05/2017

Time: 02:00 To 05:00

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)**
- Define polymer (1)
 - Define Initiators (1)
 - Write expression for weight average degree of polymerization (1)
 - Define thermoset polymers (1)
 - Write the decomposition reaction of Benzoyl peroxide (1)
 - Define liquid resins (1)
 - Define chain polymerization (1)
- Q-2** **Attempt all questions** **(14)**
- Give the difference between simple molecules and polymer molecules (5)
 - Write a note on functionality of monomers (5)
 - Write a note on different type of polymer chain (4)
- OR**
- Q-2** **Attempt all questions** **(14)**
- Discuss Stereo regular polymers (5)
 - Explain different methods to initiate free radical polymerization. (5)
 - Give the repeating unit structures of following polymers (4)
1. Poly styrene 2. Polyisoprene 3. Polyvinylchloride 4. Poly acrylic acid
- Q-3** **Attempt all questions** **(14)**
- Explain free radical polymerization also discuss its kinetics (7)
 - Discuss factors affecting free radical polymerization and properties of resulting polymer (7)

OR



- Q-3** **Attempt all questions**
- a. Explain Bulk, Solution and Emulsion polymerization methods (7)
- b. Explain kinetics of Cationic polymerization. Also Discuss Co-ordination polymerization (7)

SECTION – II

- Q-4** **Attempt the Following questions** (07)
- a. Define polycondensation (1)
- b. Define curing (1)
- c. What are comopolymers? (1)
- d. Define Gel time (1)
- e. Give on example of polyrecombination (1)
- f. Give one example of cyclization of reaction of polymers. (1)
- g. Define hydrolysis (1)

- Q-5** **Attempt all questions** (14)
- a. Explain thermodynamics of ring transformation to linear polymer. (5)
- b. Discuss vulcanization of rubber (5)
- c. Explain chemical degradation of polymers. (4)

OR

- Q-5** **Attempt all questions**
- a. Explain reactions of various functional groups present in polymer. (5)
- b. Write a note on Stepwise polymerization. (4)
- c. Discuss kinetics and mechanism of ring scission polymerization (5)

- Q-6** **Attempt all questions** (14)
- a. Discuss the Statistics of linear polycondensation. (7)
- 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. Discuss various factors affecting rate of polycondensation and molecular weight of the polymer. (7)

