

C.U. SHAH UNIVERSITY

Summer Examination-2019

Subject Name: Physical chemistry-II

Subject Code: 5SC02PCH1

Branch: M.Sc. (Chemistry)

Semester: 2

Date: 29/04/2019

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.
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SECTION – I

- Q-1 Attempt the Following questions (07)**
- a. What are liquid resins? 1
 - b. Give any one name of tetra functional monomer? 1
 - c. What is redox initiator? 1
 - d. Define: regulators 1
 - e. The degree of polymerization and kinetic chain length is directly proportional to (a) Monomer concentration (b) Initiator concentration 1
 - f. What is stereo regular polymer? 1
 - g. How the chain polymerizations differ from polycondensation? 1
- Q-2 Attempt all questions (14)**
- a. Write a short note on co-ordination polymerization. 5
 - b. Explain in detail “termination process by chain transfer”. 5
 - c. Write the methods of initiating free radical polymerization. 4
- OR**
- Q-2 Attempt all questions (14)**
- a. Give the classification of polymers. 7
 - b. Explain the concept of functionality in polymerization. 7
- Q-3 Attempt all questions (14)**
- a. Write a kinetics of free radical polymerization. 7
 - b. Explain the molecular weight control in polycondensation. 7
- OR**
- Q-3 a. Write kinetics of cationic polymerization. 7**
- b. Discuss chemical degradation. 7**



SECTION – II

- Q-4 Attempt the Following questions (07)**
- a. Give advantage of melt polycondensation? 1
 - b. Which type of polymerization proceeds with “bond arrangement” only? 1
 - c. How the mechanism of stepwise polymerization differs from chain polymerization? 1
 - d. What is cross linking reaction? 1
 - e. High initiator concentration will _____ average molecular weight (increase or decrease) 1
 - f. What is polycondensation? 1
 - g. What is degradation in polymers? 1
- Q-5 Attempt all questions (14)**
- a. Write kinetics of polycondensation reaction. 5
 - b. Write short note on emulsion polymerization. 5
 - c. Explain interfacial polycondensation and solution polycondensation. 4
- OR**
- Q-5**
- a. Explain factors affecting on rate of polycondensation and molecular weight of polymer. 8
 - b. Discuss thermodynamics of ring transformation to linear polymer. 6
- Q-6 Attempt all questions (14)**
- a. Write a brief note on stepwise polymerization. 7
 - b. Explain the mechanism of ring scission polymerization. 7
- OR**
- Q-6 Attempt all Questions**
- a. Discuss physical degradation. 7
 - b. Explain vulcanization of rubbers. 7

