

Exam Seat No: _____

Enrollment No: _____

C.U.SHAH UNIVERSITY

Wadhwan City

Subject Code : 5SC02CHC3

Summer Examination-2014

Date: 13 /06/2014

Subject Name:- Macromolecular Physical Chemistry-I

Branch/Semester:- M.Sc(Chemistry) /II

Time:02:00 To 5:00

Examination: Regular

Instructions:-

- (1) Attempt all Questions of both sections in same answer book / Supplementary
- (2) Use of Programmable calculator & any other electronic instrument is prohibited.
- (3) Instructions written on main answer Book are strictly to be obeyed.
- (4) Draw neat diagrams & figures (If necessary) at right places
- (5) Assume suitable & Perfect data if needed

SECTION – I

- Q-1 Define and discuss the following (07)**
- a) Elastomers (02)
 - b) Polycondensation (02)
 - c) Oligomers (01)
 - d) Fibers (01)
 - e) Monomers (01)
- Q-2 Answer the following. (14)**
- a) What are the polymers? How are polymers classified based on molecular forces. (05)
 - b) Write the modes of anionic and cationic polymerization. (05)
 - c) Write a note on Stereo regular polymer. (04)



OR

- Q-2 Answer the following. (14)**
- a) Write a note on: 1) Natural Rubber 2) Vulcanization (05)
 - b) Write the methods of initiating free radical polymerization. (05)
 - c) What are initiators? Differentiate between Simple and Polymer molecules (04)
- Q-3 Answer the following. (14)**
- a) Define non linear polycondensation and Write the factors affecting free radical polymerization. (07)
 - b) Write the methods of free radical polymerization. (07)
- OR
- Q-3 Answer the following. (14)**
- a) Write a note on cationic polymerization and its kinetics (07)



b) **Define synthetic polymer. Draw the structure of following:** (07)

- | | | |
|----------------|-------------|-------------|
| 1. Neoprene | 2. Bakelite | 3. Perlon L |
| 4. Polystyrene | 5. PVC | 6. PVA |

SECTION-II

Q-4 Do as Directed. (07)

- a) Define ring scission polymerisation (02)
- b) Define thermal effect (02)
- c) What are inhibitors? (01)
- d) Define chemical degradation (01)
- e) Define regulators (01)

Q-5 Answer the following. (14)

- a) Write a note on reactions of functional groups (05)
- b) Discuss the thermodynamics of ring transformation to a linear polymer. (05)
- c) Write a note on 1) Mechanical Effect 2) Stepwise polymerization. (04)

OR

Q-5 Answer the following. (14)

- a) Explain the factor effecting ring scission polymerization. (05)
- b) Enlist the factors affecting the rate of polycondensation and molecular weight of the polymer (05)
- c) Write a note on cross linking reactions (04)

Q-6 Answer the following. (14)

- a) Write a note on physio-chemical transformation reactions. (07)
- b) Describe the methods for polycondensation (07)

OR

Q-6 Answer the following in detail. (14)

- a) Define and explain the kinetics and mechanism of ring-scission polymerization. (07)
- b) Write a note on molecular weight control polycondensation. (07)

*****13***14****S

