

SARDAR PATEL UNIVERSITY

M.Sc. (Industrial Chemistry) Semester-I Examination-2012

Monday, 3rd December

10.30 a.m. to 1.30 p.m.

PS01CICH07: Organic & Polymer Chemistry

Total Marks: 70

- Note: (1) Attempt all questions.
 (2) Figures to the right indicate full marks.

Q.1 Write appropriate choice for the following. (8)

- (1) In Diels-Alder reaction, the reactivity decreases by the presence of _____ in the diene.
 (1) Electron donating group (2) Electron withdrawing group (3) Conjugated double bond (4) None of these.
- (2) In Dakin reaction, hydroxyl group is obtained from _____.
 (1) Sodium hydroxide (2) Hydrogen peroxide (3) Methanol (4) Ethanol
- (3) Aluminium ter-butoxide does not oxidize _____.
 (1) Keto group (2) Hydroxyl group (3) Double bond (4) None of these
- (4) _____ is used for selective reduction.
 (1) Selenium (2) Palladium (3) Platinum (4) None of these
- (5) Viscosity of medium is increased rapidly in _____ polymerization.
 (1) bulk (2) solution (3) suspension (4) emulsion
- (6) Anionic polymerization is also known as _____ polymerization.
 (1) bulk (2) living (3) condensation (4) All
- (7) Polydispersity = _____.
 (1) $\frac{\overline{M}_n}{\overline{M}_w}$ (2) $\frac{\overline{M}_w}{\overline{M}_n}$ (3) \overline{M}_w (4) All.
- (8) Nylon 6, 6 is synthesized by _____.
 (1) adipic acid & hexamethylene diamine (2) sebacic acid & caprolactam (3) adipic acid & diamine (4) none of these

Q.2 Attempt any **seven** of the following (14)

- (1) Write the applications of Merwein Ponderf reaction.
- (2) What is Aldol condensation reaction? Write the general reaction of Aldol condensation.
- (3) Write any two applications of Selenium.
- (4) Write the advantages of BF_3 over AlCl_3 .
- (5) Differentiate between addition and condensation polymers.
- (7) Define copolymer. Explain with their main types.

- (8) Define: (1) Plastics, (2) Elastomer, (3) fibre. (4) Polymerization
(9) Explain geometrical isomerism.
- Q.3 (a) Describe the Dakin reaction in detail. (6)
(b) Explain the Wolf kishner reaction in detail. (6)

OR

- (b) Explain Meerwein Ponndorf reaction in detail. (6)
- Q.4 (a) Describe the Poly phosphoric acid in detail. (6)
(b) Describe the Ozone in detail. (6)

OR

- (b) Explain the Periodic acid in detail. (6)
- Q.5 (a) Describe following. (6)
1. Emulsion polymerization technique.
2. Cationic polymerization.
- (b) Answer following. (6)
1. Define glass transition temperature of polymer and explain its effect on plasticizer.
2. Give an account on classification of polymer based on natural, synthetic and semisynthetic polymers.

OR

- (b) Answer following. (6)
1. Give an account on polycondensation.
2. Differentiate between thermoplastic and thermosetting polymers.
- Q.6 (a) Define oxidative degradation and write only mechanism of rubber oxidation. (6)
(b) What is meaning of polymer degradation? Explain chain end and random degradation. (6)

OR

- (b) Write a note on following. (6)
1. Degradation by high energy radiation.
2. Polymer degradation involving substituent group in thermal degradation.
