

(52/A-15)

SEAT No. _____

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Sardar Patel University

B.Sc. (Sixth Semester) Examination

31st March 2018, Saturday

Subject Code: US06CICH03 (Polymer Technology)

Industrial Chemistry

Time: 10:00 am to 01:00 pm

Total Marks: 70

Choose the correct answer from the following

- Q.1. 1 _____ is a process wherein unlike molecules join together in random sequences or alternating sequences (1)
(a) Homo polymerization (b) Co polymerization
(c) Condensation polymerisation (d) None of these
- Q.1. 2 The rate of polymerization of vinyl monomers can be reduced by the addition of relative small amounts of certain molecules, called _____. (1)
(a) stabilizers (b) free radical (c) initiators (d) inhibitors
- Q.1. 3 _____ resin is Cross linked polymer. (1)
(a) Polyethylene (b) Epoxy (c) Polystyrene (d) Polyvinyl chloride
- Q.1. 4 _____ is a condensation product of Phenol & Formaldehyde (1)
(a) Teflon (b) Bakelite (c) Epikote (d) Rayon
- Q.1. 5 The reaction between the _____ and _____ gives Epoxy resin (1)
(a) Epichlorohydrin & Formaldehyde (b) Epichlorohydrin & Melamine
(c) Formaldehyde & Bisphenol A (d) Epichlorohydrin & Bisphenol A
- Q.1. 6 Phenol formaldehyde resin is an example of _____. (1)
(a) Thermoelastic (b) Thermoplastic (c) Thermosetting (d) Viscoelastic
- Q.1. 7 Low density Polyethylene prepared at _____. (1)
(a) Low Pressure (b) High pressure (c) Under vacuum (d) Low temp
- Q.1. 8 Polyethylene was synthesized in 1933 by _____ scientists (1)
(a) Wurtz (b) Ziglar and Natta (c) Fawcett and Gibson (d) None of these
- Q.1. 9 _____ is made by polymerizing acrylonitrile. (1)
(a) Saran (b) Orlon (c) Nylon 66 (d) Dacron
- Q.1. 10 _____ Solution may be used as the coagulant to give SBR (1)
(a) Alum (b) Sulphuric acid (c) Silica (d) Sodium carbonate

Q.2 Answer the following short questions (Any Ten) (20)

- (a) Differentiate between thermosetting & thermoplastic.
(b) Give the name & structure of some saturated hydrocarbons polymers
(c) Define regulators & give their name.
(d) Explain the term Polyol and its types.
(e) Write the chemical reaction and reaction condition for urea formaldehyde resin.

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(P.T.O.)

- (f) Give the name & structure of commonly used di-Isocyanates for manufacturing polyurethanes.
- (g) Give the application of Polyvinyl Alcohol.
- (h) Classify polyethylene based on their density range.
- (i) Draw the flow chart of the high- pressure continuous polymerization of ethylene.
- (j) Write the different grades of Nylon.
- (k) Give the example of five Natural fibres along with its uses.
- (l) Give the example of five Synthetic fibres along with its uses.

Q.3 a Explain in brief molecular arrangement or structure. (5)

Q.3 b Explain Emulsion & Suspension polymerization techniques. (5)

OR

Q.3 Explain in detail the mechanism of free radical chain polymerization with suitable example. (10)

Q.4 a Explain the Taffy process for the synthesis of epoxy resin. (5)

Q.4 b Describe preparation of polyester polyols (PESPs). (5)

OR

Q.4 Describe the manufacturing, properties & uses of urea formaldehyde resin with suitable flow diagram. (10)

Q.5 a Described the manufacturing process for LDPE by High pressure process (5)

Q.5 b Write a note on Teflon. (5)

OR

Q.5 Distinguish between Bulk polymerization and Solution polymerization process along with its advantage and disadvantage. (10)

Q.6 With suitable flow diagram explain the manufacturing of Polyester fiber (10)

OR

Q.6 With suitable flow diagram explain the manufacturing of Cellulose acetate. (10)

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