[A-82]

SC

SARDAR PATEL UNIVERSITY

B. Sc. Examination (Sixth semester)

Friday, 1st April-2016

2.30 pm to 5.30 pm

US06CiCH03 (Industrial Chemistry)

Polymer Technology

Total Marks: 70

Q-1 Choose the most appropriate option for each of the following. **[10]**

(i) Molecular mass of a polymer is _____ .
(a) Small (b) Large (c) Very small (d) negligible

(ii) Which of the following is a co polymer _____ .
(a) ABS (b) Polyethene (c) Bakelite (d)Teflon

(iii) Peroxide are generally used as _____ .
(a) Initiator (b) Inhibitor (c) promoter (d) Retarder

(iv) Flexible Foam are usually made up of_____ .
(a) PVC (b) Polyurethane (c) Polyamide (d) Silicon Rubber

(v) The reaction between the isocynate and the glycol gives_____ .
(a) Poly urethane (b) epoxy (c) PF-resin (d) Nylone

(vi) LDPE is prepared by a typical _____ Polymerization.
(a) Free-radical (b) Cationic (c) Anionic (d) None of these

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(viii) Which of the following is Fluoro Polymer?
(a) Poly (tetra-fluoro ethylene) (c) Poly(Vinyl Fluoride)
(c) Poly(Vinylidine Fluoride) (d) All of these

(ix) _____ is formed from dimethyl terpthalet and ethylene glycol.
(a) Polyester (b) Nylon-6 (c) Saran (d) Orlon

(x) _____is the co polymer of vinyl chloride and vinylidine chloride.
(a) Orlon (b) Saran (c) Nylon-66 (d) Dacron

Q-2 Attempt any TEN questions from the following. **[20]**

(a) Define: (i) Monomer (ii) degree of polymerization

(b) Give the comparison of thermosetting & thermoplastic.

(c) What is polycondentation? Explain with simple example.

(d) Draw net flow chart for the production of PF-(novalak) resin.

(e) Draw the flow chart of urea formaldehyde resin.

(f) Explain Cumene process for the preparation of phenol of PF resin.

(g) Write brief about high density polyethylene (HDPE).

(h) Give the Application of PVA.

(i) Write the properties of Polyethylene.

PTO

(j) Write the different Grade of Nylon.

(k) Write the synthesis of chloroprene.

(l) Write the brief note on Modacrylic fiber.

Q-3 Attempt the following.

(a) Explain the mechanism of free radical polymerization with suitable example **[05]**

(b) Give the comparison between Addition & Condensation polymerization. **[05]**

OR

Q-3 Attempt the following.

(a) Explain Bulk polymerization & solution polymerization techniques. **[05]**

(b) Write a brief note on Initiators & Inhibitor for polymerization. **[05]**

Q-4 Describe the process of manufacturing melamine formaldehyde Resin with suitable flow diagram. Give the important properties & uses of Melamine formaldehyde Resin. **[10]**

OR

Q-4 Give the process for preparation of polyester polyol. **[10]**

Q-5 Attempt the following.

(a) Give the properties and application of poly carbonate **[05]**

(b) Explain the bulk polymerization process for the production of poly (vinyl chloride) **[05]**

OR

Q-5 Attempt the following.

(a) Write a note on PTFE. **[05]**

(b) Described the manufacturing process for LDPE by High pressure process. **[05]**

Q-6 Attempt the following.

(a) Explain emulsion polymerization of chloroprene. **[05]**

(b) With suitable flow diagram explain the manufacturing of Polyester fiber **[05]**

OR

Q-6 Attempt the following.

(a) Write a note on Styrene butadiene rubber. **[05]**

(b) With suitable flow diagram explain the manufacturing of Cellulose acetate. **[05]**