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[22]

SARDAR PATEL UNIVERSITY

ON DEMAND EXAMINATION

B.Sc. INDUSTRIAL CHEMISTRY VOCATIONAL (SEMESTER- VI)

US06CICV22: (Polymer Science and Technology)

Friday, 24th June - 2022

Time: 10:00 am to 12:00 pm **Total Marks: 70**

Note: Figures to the right indicate full marks.

Q.1 Answer the given multiple choice questions. (All are compulsory) [10]

1. Which of the following is a co polymer_____.
   (a) Bakelite (b) ABS (c) Teflon (d) Polyethene
2. Bitumen is an example of _____polymer.
   (a) Natural (b) Synthetic (c) Semi- Synthetic (d) None of these
3. _____ is an addition polymers.
   (a) Nylon (b) Polyethene (c) Bakelite (d) All of these
4. PVC is one of the most _____ polymer.
   (a) Thermosetting (b) Thermoplastic
   (c) Thermoelastics (d) Thermite
5. Phenol formaldehyde resin is an example of _____ Polymer.
   (a) Thermosetting (b) Thermoplastic
   (c) Thermoelastics (d) Thermite
6. Flexible Foam are usually made up of_____
   (a) PVC (b) Polyurethane (c) Polyamide (d) Silicon Rubber
7. The reaction between the isocynate and the glycol gives_____.
   (a) Poly urethane (b) epoxy (c) PF-resin (d) Nylon
8. LDPE is prepared by a typical _____ Polymerization.
   (a) Free-radical (b) Cationic (c) Anionic (d) None of these
9. _____ is used as a raw material for production of nylon 6.
   (a) Caprolactom (b) Lactone (c) Urea (d) cyclone
10. Polyethylene is prepared by _____.
    (a) High-pressure process (c) Low- Pressure process
    (b) Both a & b (d) Vacuum

Q.2 Are the following statements TRUE or FALSE? (All are compulsory) [08]

1. Molecular mass of a polymer is large.
2. Functionally of phenol is Two.
3. Cellulose is example of natural polymer.
4. DP and MP are related to molecular size.
5. Tertiary amines used as hardners for epoxy prepolymers.
6. The reaction between the epichlorohydrin and Bis phenol A gives Epoxy resin.
7. Alum solution may be used as the coagulant to give SBR.
8. Polystyrene is soluble in chlorinated and aeromatic hydrocarbons.

(P.T.O.)

Q.3 Answer the following short questions (Attempt any 10 out of 12) [20]

1. Define the term polymer.
2. Give the comparison of thermosetting & thermoplastic.
3. Give the mechanism of co-catalyst.
4. Define the term degree of polymerization.
5. What is polyol? How many types of polyols?
6. Draw a molecular weight distribution curve for hypothetical polydispersed polymer Sample.
7. Write in brief about polyurethane scalants.
8. Give various properties of Melamine formaldehyde resin.
9. Draw a flow chart for the preparation of PEP.
10. Give a difference between LDPE and HDPE.
11. Write the properties of polypropylene.
12. Write the applications of PVC.

Q.4 Answer the following Long questions (Attempt any 4 Out of 8) [32]

1. Write a detail note on classification of polymers.
2. Write a short note on Ziegler Natta catalyst.
3. Discuss about particle signification of polymer molecular weight.
4. Explain the relation between structural regularity and crystallisability.
5. Explain in detail about epoxy polymer synthesis.
6. Describe a process on manufacturing of urea with suitable diagram.
7. Write a note on manufacturing of polypropylene by slurry process.
8. Write a detail note on preparation of nylon- 66.