

SEAT No. \_\_\_\_\_

No. of Printed Pages : 2

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# Sardar Patel University

B. Sc. (Semester VI) Examination

Date: 16-07-2021, Friday

Time: 10:00 – 12:00

Industrial Chemistry

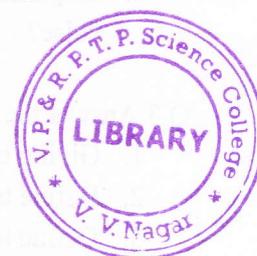
COURSE NO: US06CICH22 (Polymer Technology)

Notes: Figures to the right indicate full marks.

Total marks: 70

Q.1 Answer the following Multiple Choice Questions. (All are compulsory) (10)

1. Polymerization in which two or more different monomers takes part is called .....  
A. Addition polymerization. C. Co polymerization.  
B. Chain polymerization. D. Ring opening.
2. Functionality of phenol is .....  
A. One C. Two.  
B. Three D. Six
3. Stereo Regular polymers are called as.....  
A. Atactic C. Syndiotactic  
B. Isotactic D. None of these
4. High concentration of initiator in addition polymerization will lead to..... in molecular mass of polymer.  
A. Increases C. No Changes  
B. Decreases D. All The Above
5. As the Crystallinity increases The brittleness of the polymer .....  
A. Increases C. Moderate  
B. Decreases D. Remains Constant
6. The impact strength is measured as .....  
A. Elasticity C. Permeability  
B. Strength D. Toughness
7. Flexible Foam is usually made up of .....  
A. PVC C. Polyamide  
B. Polyurethane D. Silicon Rubber
8. Bakelite is a copolymer of .....  
A. Urea & Formaldehyde C. Phenol & Formaldehyde  
B. Melamine & Formaldehyde D. Ester
9. Butadiene is produced through the \_\_\_\_\_ of butylenes or butane.  
A. Dehydrogenation C. Hydrogenation  
B. Oxidation D. Reduction
10. In vulcanization of polybutadiene \_\_\_\_\_ is used as a vulcanizing agent.  
A. Sulphur C. Quinone  
B. Oxygen D. Nitrogen



Q.2 Answer the following:

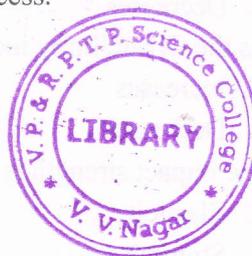
(08)

1. The chemical process leading to the formation of polymer is known as polymerization. True / False?
2. Addition polymerization requires the presence of a double bond in monomer. True / False?
3. The number of monomeric units contained in the polymer is called the degree of polymerization. True / False?
4. Higher molecular weight polymers are tougher and more heat resistant. True / False?
5. Curing process of epoxy polymers results due to chain termination. True / False?
6. Polystyrene are crystalline in nature and have very low degree of branching. True / False?
7. Silk is the most complex fibrous protein obtained from animal source. True / False?
8. Ziegler-Natta catalyst is used to produce stereoisomers of Polybutadiene. True / False?

Q.3 Answer the following short questions (Any Ten).

(20)

1. Giving example, define term "Thermosetting Polymer".
2. Define term "Degree of polymerization."
3. Define term "Inhibiter".
4. What is glass transition temperature?
5. Why the molecular weight of polymer explains in terms of average value?
6. Explain the term Crystallinity and Degree of Crystallinity.
7. What is polyol? How many types of polyols are available?
8. Give the preparation of Isocyanates by phosgenation process.
9. Write the properties of Polystyrene.
10. Write the Reaction for the synthesis of Nylon-66.
11. Write the synthesis of chloroprene.
12. Write the different Grade of Nylon



Q.4 Attempt any four questions.

(32)

1. Give the classification of polymer based on molecular arrangement & tacticity.
2. Explain Bulk polymerization & solution polymerization techniques.
3. Explain the weight average molecular weight of polymer concept in detail.
4. Explain the end group analysis for calculating number average molecular weight of polymer.
5. Explain the process of manufacturing phenol formaldehyde Novalac resin.
6. Described the manufacturing process for LDPE by High pressure process.
7. With suitable flow diagram explains the manufacturing of Cellulose acetate.
8. Write a properties and applications of Styrene butadiene rubber.

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