

[21]

Roll No. \_\_\_\_\_

No. of Printed Pages: 2



**SARDAR PATEL UNIVERSITY**  
**T.Y.B.Sc. SEMESTER – VI (Industrial Chemistry)**  
**EXTERNAL EXAMINATION**  
**SUB CODE: US06CICH22 (Polymer technology)**

DATE: 24/06/2022

DAY: Friday

TIME: 10:00 to 12:00 PM

TOTAL MARKS: 70

**Q.1 Choose the correct answer.****[10]**

1. PVC is one of the most \_\_\_\_\_ polymer.  
 (a) Thermoplastic (b) Rubber (c) Thermoset Plastic (d) None of these
2. Natta classified the \_\_\_\_\_ geometric from adopted by the polymer chain of polypropylene.  
 (a) Three (b) One (c) Two (d) Four
3. Polyethylene is prepared by \_\_\_\_\_.  
 (a) High-pressure process (b) Low- Pressure process (c) Both a & b (d) Vacuum
4. Molecular Mass of polymerizes always expressed in.....term.  
 (a) Absolute (b) Average (c) Both a and b (d) None of These
5. The number average mass of polymer is written as.....  
 (a) mv (b) mw (c) mn (d) mz
6. Commercial polymer selected on the based on \_\_\_\_\_.  
 (a) Impact strength (b) Tensile strength (c) Melt viscosity (d) All of these
7. What is the Phenol formaldehyde ratio for production of resole?  
 (a) 1: 1.4 (b) 1:0.8 (c) 8: 1 (d) 1:1
8. Nylon are \_\_\_\_\_.  
 (a) Polyamide (b) Polycarbonate (c) Amino resin (d) Phenolic resin
9. \_\_\_\_\_ is the homopolymer of caprolactum.  
 (a) Nylon 6 (b) Nylon 66 (c) Nylon 10 (d) Nylon 12
10. \_\_\_\_\_ solution may be used as the coagulant to give SBR.  
 (a) Alum (b) Silica (c) Sulphuric acid (d) Sodium carbonate.

**Q.2 Fill in the Blanks and True-False.****[08]**

1. When ethane is oxidized Ethylene is obtained. (True/False)
2. Molecular mass of a polymer is .....
3. Linear polymer has high regular configuration and crystallinity is 90% (True/False)
4. T<sub>g</sub> of polyethylene is -110. (True/False)
5. The reaction between the epichlorohydrin and Bis phenol A gives Epoxy resin. (True/False)
6. Saran is the co polymer of vinyl chloride and vinylidene chloride. (True/False)
7. Denier is a measure of the Weight of fiber per unit length. (True/False)
8. LDPE have density ranging from 0.915 to 0.94 gm/cc. (True/False)

**Q.3 Answer the following.(attempt any 10 out of 12)**

**[20]**

1. Define Elastomers & plastimers .
2. Give the comparison of thermosetting & thermoplastic.
3. Give the name of method and techniques of polymerization.
4. What is polycondensation ? Explain with simple example.
5. Enlist & express the method of average molecular weight.
6. What is glass transition temperature?
7. Give the formula of sedimentation & viscosity average molecular weight.
8. Explain the term crystallinity and degree of crystallinity.
9. Give the name & structure of commonly used di-Isocyanates for manufacturing polyurethanes.
10. Give the preparation of isocyanates by phosgenation process.
11. Give the example of five natural fiber.
12. Give the example of five Synthetic fibers.

**Q4. Long Answer Question (Attempt any 4 out of 8)**

**[32]**

1. Write a brief note on Initiators & Inhibitor for polymerization.
2. Write a short note on Ziegler Natta catalyst.
3. Explain the number average concept in detail.
4. Explain the weight average concept in detail.
5. Explain the manufacturing of poly (vinyl alcohol) by continuous hydrolysis process.
6. Explain the bulk polymerization process for the production of poly (vinyl chloride).
7. Write a note on Styrene butadiene rubber.
8. Explain emulsion polymerization of chloroprene.

