

M.Sc. II Year (Chemistry) (CBCS Pattern) Semester - IV  
**PSCHT16.4 - Elective : Polymer Chemistry**

P. Pages : 2

Time : Three Hours



**GUG/S/23/11463**

Max. Marks : 80

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- Notes : 1. All questions are compulsory and carry equal marks.  
2. Draw suitable diagram wherever necessary.

1. a) What are polymers? Discuss free radical polymerization mechanism with all steps involved. **8**

b) Explain addition and condensation polymerization. **8**

**OR**

c) Explain the types of polymerization. **4**

d) Explain Ring-opening polymerization. **4**

e) What is electro-polymerization? Explain its examples. **4**

f) Explain step polymerization. **4**

2. a) Explain the polymerization mechanism of Ziegler Natta polymerization. **8**

b) Explain the mechanism of interfacial polymerization. **8**

**OR**

c) Write a note co-ordination polymerization. **4**

d) Write a note on stereospecific polymerization. **4**

e) Discuss solid and gas phase polymerization. **4**

f) Explain suspension polymerization. **4**

3. a) Write preparation & proportion of graft copolymer. **8**

b) Describe the TGA method for the characterization of polymers. **8**

**OR**

c) How is IR method used in the characterization of polystyrene? **4**

d) Explain random polymerization. **4**

e) Discuss DSC method for characterization of polymers. **4**

f) Explain any one method of copolymerization. **4**

4. a) What is the Inorganic polymer? Describe synthesis and applications of silicon polymers. 8  
b) Give application of Biomedical polymer in artificial heart and skin. 8

**OR**

- c) Explain contact lense and dental polymers. 4  
d) Give application of coordination polymers. 4  
e) Give applications of Sulphur containing polymers. 4  
f) Write a note on phosphorus polymer. 4
5. a) Differentiate between Thermoplastic and Thermosetting polymers. 2  
b) What are inhibitors? Explain with example. 2  
c) Write a note on reactivity ratio. 2  
d) Explain Block co-polymer. 2  
e) Write the name of catalyst used in Zeigler Natta polymerization. 2  
f) Explain the term bulk polymerization. 2  
g) Explain biomedical polymers as contact lens. 2  
h) How biomedical polymers are useful in Kidney related disease. 2

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