

**MASTER OF TECHNOLOGY (CHEMICAL ENGINEERING) (CBCS - 2015 COURSE)**  
**M. Tech. (Chemical Engineering) Sem-IV :SUMMER- 2022**  
**SUBJECT : SELF-STUDY PAPER-II:POLYMER ENGINEERING**

Day : Wednesday  
Date : 15-06-2022

**S-14551-2022**

Time : 10:00 AM-01:00 PM  
Max. Marks : 60

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**N.B.**

- 1) All questions are **COMPULSORY**.
  - 2) Figures to the **RIGHT** indicate **FULL** marks.
  - 3) Use of non-programmable calculator is **allowed**.
  - 4) Assume suitable data **WHEREVER** necessary.
  - 5) Draw neat diagram **WHEREVER** necessary.
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**Q.1** Which are the types of polymerization? What is difference between them? (10)

**OR**

**Q.1** What is degree of polymerization? How does it affects on polymer molecules weight? (10)

**Q.2 a)** What is importance of terephthalic acid? How it is manufactured? (05)

**b)** How acrylonitrile is manufactured? Correlate its properties with applications. (05)

**OR**

**Q.2** What is the process for polymerization of polystyrene? Which are the factors important to control properties of synthesized polymer during synthesis? (10)

**Q.3** Which are the types of reactors used in polymerization process? What are their design considerations? (10)

**OR**

**Q.3** What is need of agitators in polymerization? Which are the types of agitators used in polymerizations? (10)

**Q.4** Which are the mechanical properties of polymer? How does crystallinity affect the mechanical properties and its applicability? (10)

**OR**

**Q.4** What is glass transition temperature ( $T_g$ ) of polymer? How does it affect polymer properties and applicability? (10)

**Q.5** What is the principle and working of injection moulding? Which are its applicability and limitations? (10)

**OR**

**Q.5** What is reinforced plastic? Which are the types of reinforcement? How does it help to enhance polymer properties and applicability? (10)

**Q.6** Which are the polymers used as adhesives? What are their important properties, which makes them suitable as adhesive? (10)

**OR**

**Q.6** Which are the issues with polymeric waste? What are the methods for its management? (10)

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