

- Q.28 Discuss zero shear viscosity of polymer.
  - Q.29 What are the factors which effects glass transition temperature?
  - Q.30 Discuss reaction mechanism of addition polymerization.
  - Q.31 Write importance of copolymers in plastics industries.
  - Q.32 Discuss reaction mechanism of ring opening by condensation polymerization.
  - Q.33 Explain molecular weight of polymers by viscometry.
  - Q.34 Discuss bulk polymerization and their advantages.
  - Q.35 Discuss important of copolymers in plastic industries.

## **SECTION-D**

**Note:** Long answer type questions. Attempt any two questions out of three questions. (2x10=20)

- Q.36 Write short notes on.

  - (a) Solution polymerisation
  - (b) Emulsion polymerization

Q.37 Write advantages and disadvantages of  
polymerization.

Q.38 Write short notes on

  - (a) Maxwell model for viscoelastic
  - (b) Voigt model for viscoelastic

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**3rd Sem / Branch :-Plastics Technology  
Subject:-Polymer Science and Technology / Poly. Sc.  
& Tech. I**

Time : 3Hrs. M.M. : 100

## **SECTION-A**

**Note:** Multiple choice questions. All questions are compulsory (10x1=10)

- Q.1 Thermoplastic materials are.

  - a) UF
  - b) MF
  - c) PF
  - d) None of these

Q.2 Monomer of polypropylene is.

  - a) Propylene
  - b) Both (a) and (c)
  - c) Styrene butadiene
  - d) None of these

Q.3 Raw material of nylon 6 is .

  - a) Caprolectum
  - b) Hexamethylene diamine
  - c) Adipic acid
  - d) None of these

Q.4 Semisynthetic polymers is.

  - a) Cellulose
  - b) Teflon
  - c) PVC
  - d) None of these

Q.5 A polymer made of identical monomer units is called

  - a) Homopolymer
  - b) Linear polymer
  - c) Copolymer
  - d) None of these

**Q.6** Molecular weight of polymers.

- a) Molecular mass
- b) sum of atomic weight of the atoms
- c) Mass of the molecules
- d) All of these

**Q.7** Expand PDI.

- a) Polydispersity index
- b) Degree of polymer index
- c) Both A&B
- d) None of these

**Q.8** Which of the following monomer mixture is used in bulk polymerization?

- a) Undiluted monomer
- b) Monomer solvent mixture
- c) Monomer water mixture
- d) All of these

**Q.9** Disadvantage of solution polymerization.

- a) Handling of inflammable solvents
- b) Recovery of solvents
- c) Chain transfer to solvent
- d) All of these

**Q.10** Which of the following polymerization is also known as pearl polymerization?

- a) Bulk
- b) Solution
- c) Emulsion
- d) Suspension

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## **SECTION-B**

**Note:** Objective type questions. All questions are compulsory. (10x1=10)

Q.11 Define monomer.

Q.12 Define polymer.

Q.13 Define glass transition temperature.

Q.14 What is polymerization.

Q.15 Define degree of polymerization.

Q.16 What viscosity.

Q.17 Write two examples of copolymer.

Q.18 Write two examples of synthetic polymer.

Q.19 Define molecular weight of polymer.

Q.20 Define shear force

## **SECTION-C**

**Note:** Short answer type questions. Attempt any twelve questions out of fifteen questions. (12x5=60)

Q.21 Differentiate between amorphous and crystalline polymers.

Q.22 How to determine polymer molecular weight by gel permeation chromatography.

Q.23 Discuss weight average molecular weight of polymer.

Q.24 What are the general rules for polymer solubility.

Q.25 Write solubility Parameters.

Q.26 What are the techniques which determine glass transition temp

Q.27 Define glass transition temperature and write relation between Tg and Tm.

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