

- Q.28 Explain thermal transition and its importance in plastic industries.
- Q.29 Drive an expression of Carothers equation for condensation.
- Q.30 How to determine molecular weight of polymer by light scattering method.
- Q.31 Explain thermodynamics of polymer solution.
- Q.32 Explain molecular weight of polymer by viscometry.
- Q.33 Drive an expression of reaction mechanism of addition polymerization by free radical.
- Q.34 Write advantages of emulsion polymerization.
- Q.35 Write reaction mechanism of Ziegler Natta polymerization.

#### SECTION-D

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

- Q.36 Write short note on
- Bulk polymerization
  - Solution Polymerization
- Q.37 Discuss Glass transition temp and their factors affecting the T<sub>g</sub>. Write relationship between T<sub>m</sub> & T<sub>g</sub>.
- Q.38 Write short note on
- Reactivity ratio
  - Importance of copolymer

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#### 4th Sem / Plastic

#### Subject:- Polymer Science and Technology - II

Time : 3Hrs.

M.M. : 100

#### SECTION-A

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

- Q.1 Rheology refers to
- Flow and deformation
  - Viscosity only
  - Both A & B
  - None of these
- Q.2 Newtonian fluids are those which follow
- Newton's law of viscosity
  - Power Law
  - Hooke's Law
  - None of these
- Q.3 Recyclable plastics is/are
- ABS
  - PP
  - SAN
  - all of these
- Q.4 Cross linked polymers refers to
- Thermoplastic
  - Thermoset
  - Both of A & B
  - None of these

- Q.5 Which are influencing Glass transition temperature (T<sub>g</sub>)
- Temp.
  - Chemical composition
  - Intermolecular forces
  - all of these
- Q.6 Time dependent permanent deformation is called
- Plastic deformation
  - Elastic deformation
  - Creep
  - None of these
- Q.7 Branched chain polymers compared to linear polymer have higher
- Density
  - Tensile strength
  - Melting Temp.
  - Degree of irregularity in atom packing
- Q.8 Visco-elastic behavior exhibited by plastic is
- Solid
  - Liquid
  - Both A & B
  - None of these
- Q.9 Chain growth polymerization is usually much lower than step growth polymerization
- True
  - False
  - May be
  - None of these
- Q.10 Shape of true stress-strain curve for a material depends upon
- Strain
  - Strain rate
  - Temp.
  - All of these

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## SECTION-B

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

- Q.11 Define degree of polymerization.
- Q.12 Expand FTIR.
- Q.13 Define amorphous polymers.
- Q.14 Define stress.
- Q.15 Define creep.
- Q.16 Write formula of Number average molecular weight of polymers.
- Q.17 Define free radical.
- Q.18 Define Initiator.
- Q.19 Define Copolymer.
- Q.20 Define Homopolymer.

## SECTION-C

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

- Q.21 Explain power law of fluid.
- Q.22 Drive an expression of Maxwell model.
- Q.23 Define polymerization techniques explain any one of them.
- Q.24 Explain time dependent & time independent behavior of visco-elastic materials.
- Q.25 Explain copolymers and their types.
- Q.26 Write importance of copolymers in plastic industries.
- Q.27 Drive an expression of weight average molecular weight of polymers.

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