

Calculate:

(i) Number average molecular weight, M_n

(ii) Weight average molecular weight, M_w

(iii) Polydispersity index (PDI) of the polymer.

(b) Explain the mechanism of cationic polymerization.

(c) Give an account of classification of polymers.
(5, 5, 5)

6. Describe the method of preparation, properties and important application of the following polymers :

(a) Poly(vinyl acetate)

(b) Phenol formaldehyde resin

(c) Cellulose (5, 5, 5)

(100)

[This question paper contains 4 printed pages.]

Your Roll No.....

Sr. No. of Question Paper : 6055

H

Unique Paper Code : 2174001208

Name of the Paper : GE- Basics of Polymer Chemistry

Name of the Course : **B.Sc. (P) / B.Sc. (Hons.) / B.A.**

Semester : IV / II

Duration : 2 Hours

Maximum Marks : 60

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.

2. Attempt *four* questions in all.

1. Fill in the blanks

(a) The repeat unit of the polymer polyacetylene is _____

(b) Bakelite is a condensation polymer of _____

(c) For solubility of a polymer in a solvent ΔG must be _____

P.T.O.

6055

2

- (d) The IUPAC name of the polymer polystyrene is _____
- (e) PDI for natural polymer is generally close to _____
- (f) The example of conducting polymer is _____
- (g) The monomer of natural rubber is _____
- (h) Polyaniline is an example of _____ Polymer.
- (i) The example of biodegradable polymer is _____
- (j) Molten polymer can be moulded in desired shape is called _____ . (1.5×10=15)
2. (a) Differentiate between the following:
- (i) Atactic and isotactic polymers
- (ii) Free radical and ionic polymerisation
- (b) Give a detailed account of thermal properties of polymers.
- (c) Distinguish between thermoplastics and thermoset plastics. (5,5,5)
3. (a) Write the IUPAC name of
- (i) Polytetrafluoroethylene

6055

3

- (ii) Polyethylene
- (b) How can you determine molecular weight of a polymer by end group analysis? Explain in detail.
- (c) Discuss briefly about biodegradable polymers and conducting polymers. (5, 5, 5)
4. (a) Give the chemical representation and important uses of the following polymers
- (i) Nylon-6
- (ii) Poly (vinyl chloride)
- (b) Discuss Membrane osmometry method for determining number average molecular weight of polymers.
- (c) Discuss the dissolution process of a polymer in solvents. (5, 5, 5)
5. (a) A polydisperse sample of polystyrene is prepared by mixing three monodispersed samples in the following proportions
- 2 g - 10,000 molecular weight
- 4 g - 50,000 molecular weight
- 4 g - 100,000 molecular weight

P.T.O.