

5846

4

2 g – 10,000 molecular weight

4 g – 50,000 molecular weight

4 g – 100,000 molecular weight

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) Explain primary and secondary bonding in a polymer chain. (5,5,5)

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

(a) Polytetrafluoroethylene

(b) Phenol formaldehyde resin

(c) Cellulose (5,5,5)

(1000)

[This question paper contains 4 printed pages.]

Your Roll No.....

Sr. No. of Question Paper : 5846

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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

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 polystyrene is

_____ .

(b) The example of polymer made of protein is

_____ .

P.T.O.

- (c) The example of polyamide polymer is _____ .
- (d) The IUPAC name of the polymer polyacetylene is _____ .
- (e) PDI for natural polymer is generally close to _____ .
- (f) The example of conducting polymer is _____ .
- (g) The monomer unit of cellulose is _____ .
- (h) Polyaniline is an example of _____ Polymer.
- (i) The example of biopolymer is _____ .
- (j) The non-metal used in the vulcanization of rubber is _____ . (1.5×10=15)
2. (a) Differentiate between the following :
- (i) Atactic and isotactic polymers
- (ii) Thermoplastics and thermosets
- (b) Give a detailed account of thermal properties of polymers.
- (c) Discuss the factors that affects the solubility of a polymer. (5,5,5)

3. (a) Write the IUPAC name of
- (i) Polypropylene
- (ii) Polystyrene
- (b) How can you determine molecular weight of a polymer by end group analysis ? Explain in detail.
- (c) Discuss briefly about silicone polymers and conducting polymers. (5,5,5)
4. (a) Give the chemical representation and important uses of the following polymers
- (i) Nylon-6, 6
- (ii) Poly(vinyl chloride)
- (b) Discuss Membrane osmometry method for determining number average molecular weight of polymers.
- (c) Write a note on texture of polymers. (5,5,5)
5. (a) A polydisperse sample of polystyrene is prepared by mixing three monodispersed samples in the following proportions